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By Wallace M. Dennison, M.B. Glasg., F.R.C.S.E.
ASSISTANT TO THE VISITING SURGEON AT THE ROYAL HOSPITAL FOR SICK CHILDREN, GLASGOW

The modern treatment of burns and scalds dates from 1925, when Davidson introduced tannic acid as an external application. He enumerated its advantages thus: it lessens toxæmia, is analgesic, limits secondary infection, minimises trauma, conserves body fluids, and forms a scaffold for the growth of young epithelial cells. All these statements (Davidson 1925, 1926, Davidson and Matthew 1927) remain unchallenged today. The important principle of Davidson's method is not tannic acid per se but coagulation, and satisfactory results have been claimed for other coagulants. During the past five years these methods have been investigated in the Royal Hospital for Sick Children, Glasgow.

Seeger (1932) recommended the addition of sodium carbonate to the tannic acid, to bring the hydrogen-ion concentration approximately to 7. Ferguson (1933), in a series of cases in this hospital, found no advantages from the use of this solution. Gentian violet and other dyes coagulate proteins slowly (Aldrich 1937), but in children this coagulum has not been found adequate to prevent toxæmia. Silver nitrate alone (Shillito 1929) produces a coagulum which is too hard, but used together with tannic acid (Bettman 1935) it leads to a very satisfactory eschar. Black ink (gallotannate of iron) has been used with success in small burns in outpatients (Stammel 1929). Coan (1935) described in detail the use of ferric chloride as a coagulant. In our series a satisfactory coagulum was obtained in all cases when the tincture was used in the fresh state. Precipitation in the solution developed within a few days, however, and the supernatant fluid did not form such a satisfactory coagulum. Mercurochrome (Turner 1935) was tried, but the resultant coagulum was too thin.

From 1932 to 1934 I saw many examples of the toxic erythematous rash which can be produced by picric acid, and I have hesitated to use it even as a first-aid measure on children. Cold tea has given a satisfactory coagulum in a small series of cases, and I suggest that this is probably the best first-aid remedy for use in every home.

We have used tannic acid in strengths ranging from 2½ per cent. (Mitchiner 1933) to 20 per cent. (Wilson 1935, 1936) solutions. The weaker solutions have been abandoned owing to the length of time required to produce a satisfactory coagulum. This is an extremely important factor in infants and children. For the past eighteen months the 20 per cent. solution has been discarded in favour of the Bettman technique, for the eschar formed was too thick and tended to crack. Post-mortem sections of the coagulum and underlying tissues have shown that there is no difference in depth of penetration with different concentrations of tannic acid. The tannic acid has always been made freshly as required, and during the last two years no antiseptics have been added to the solution.

The many tannic-acid jellies and creams on the market have proved satisfactory in many cases. Messrs. Reckett and Sons have supplied us with their Dettol Burn Cream No. 4 (tannic acid, tragacanth, and dettol), and this preparation is now constantly used for burns of the face. Owing to its flexibility, this cream is useful when the injury is situated at flexures, and it is used routinely for "patching up" cracks which appear in the coagulum formed by the tannic acid and silver nitrate. Owing to the rapidity of coagulation the application of tannic acid together with silver nitrate has been used as the routine method of treatment in one surgical unit in this hospital for the past eighteen months. This method has proved satisfactory in all respects.

Cod-liver oil (Steel 1935), like other oily dressings, produces no coagulation of the damaged surface and so allows the development of secondary shock and toxæmia. It is never used in this unit as a primary form of treatment, although it has its place during the stage of healing.

CLINICAL STAGES AND THEIR TREATMENT

The most satisfactory classification of the course of an extensive burn or scald is that suggested by Wilson (1929): (1) primary shock; (2) secondary shock; (3) toxæmia; (4) sepsis; and (5) healing.

Primary shock.—There is general agreement that primary shock is due to a vasomotor upset resulting from nervous impulses from the injured area. The condition is readily assessed by the appearance of the child, but careful control is kept by frequent blood-pressure readings. In this hospital, however, primary shock is rarely seen, for it tends to pass off before admission. If present, the condition responds rapidly to the usual treatment for shock—sedatives, warmth, and, if necessary, fluids. Mourgue-Moulines (1937) has emphasised the importance of the treatment of the patient's general condition, as opposed to the treatment of the damaged surface. In children this does not hold to the same extent as in adults; generally speaking, local treatment of the injury must be instituted soon after admission.

Secondary shock.—There has been much controversy concerning the ætiology of secondary shock (Cannon and Bayliss 1919). In burns the principal feature is the diminution in active blood volume (Blalock 1930), apparently due to loss of plasma, but the mechanism producing this loss is still a matter of conjecture. The most outstanding clinical manifestations are the falling blood-pressure and the intense thirst which children often exhibit. The other signs of secondary shock do not require description here.

It has been estimated (Mitchiner 1935) that in a man of 10 st. with a sixth of the body surfaces burnt, 3500 c.cm. of serum will be lost from a total blood volume of 5000 c.cm. within twelve hours of the injury. The effect of a proportionate loss in a child can be readily understood. The aim of treatment, therefore, is to stop the outpouring of fluid by coagulation of the injured surface and to replace lost fluids. Unfortunately, primary shock may merge insidiously into secondary shock, and secondary shock into toxæmia. It is impossible to draw a hard and fast line between the three phases, but for the purposes of treatment an arbitrary demarcation is made. Primary shock has usually passed off within two hours of injury under appropriate treatment; if the blood-pressure continues to fall in spite of treatment, treatment for secondary shock is instituted. Toxæmia is rarely present under six hours and is usually manifested by a rising temperature.

During the cleansing preparatory to coagulation of the injured surface there is often a further fall in

blood-pressure. This is much greater when the cleansing is done without a general anæsthetic, although we have tried the sedative effect of most of the recommended drugs. If the child is too ill to stand gas-and-oxygen anæsthesia, coagulation without preliminary cleansing should be carried out while the patient remains in bed, gauze wrung out of tannic acid being applied and allowed to dry. Adequate cleansing and recoagulation takes place when the general condition of the patient has improved.

If shock is severe, lost fluids are replaced by an intravenous injection of a 6 per cent. solution of gum saline, but we have not found this to be necessary as a routine method in the treatment of burns and scalds. Most children can retain fluids given orally and per rectum. Young children will drink saline without showing disapproval, whereas in older children even flavoured salines are not tolerated when given by mouth.

There are no constant changes in blood chemistry during this phase, and post mortem no constant typical findings have been observed.

Toxæmia is by far the commonest cause of death from burns and scalds in childhood. Although it is usually most severe in extensive injuries, I have seen severe toxæmia arising when the damaged area measured only 6 sq. in. Every burn or scald, no matter how trivial it may appear, subjects the child to a real risk of toxæmia. We have no certain knowledge of the sources or constitution of the toxic substance (Wilson et al. 1938), but we do know that it has serious effects on the liver, that it alters the blood chemistry in a way that suggests damage to the suprarenal cortex, and that animal experiments suggest that the hypothalamus is gravely affected. Post mortem there are no obvious constant changes in the suprarenal bodies, but there is a striking and characteristic central-zone necrosis of the liver lobules. Unfortunately all experimental and biochemical investigations have been temporarily abandoned, but it is essential to pursue the study of this, the most important remaining problem of burns.

In the early stages toxæmia is not always easy to recognise, but at any time from six hours to six days after injury the signs and symptoms, which are often only too typical, may arise. The commonest features are sustained pyrexia, restlessness, a rapid pulse-rate and a rapid respiration-rate (closely simulating pneumonia), pallor (often greyish or cyanotic), vomiting (often bloodstained), delirium, convulsions, and finally coma and death. Usually the blood-pressure does not fall until the condition is well established. In this series death from toxæmia has taken place at periods varying from eighteen hours to seven days after injury.

Treatment is directed to (1) the coagulum, (2) support of the liver, and (3) the apparent suprarenal insufficiency. Toxæmia may develop if even a small area of the coagulum becomes moist, and with only a mild degree of sepsis present the outlook is much more grave (Aldrich 1937). The coagulum is carefully inspected at short intervals, and doubtful areas are dehydrated with ether and painted with a 1 per cent. solution of gentian violet in spirit (Weaver 1934). If necessary, the area is retanned. We have ceased to use the tannic-acid "compress" except as an emergency measure (in severe secondary shock). With this method the coagulum could not be seen, and areas of softening could arise unobserved, leading to toxæmia. For the same reason the practice of applying plaster-of-paris over the coagulum has been abandoned.

To support the liver, a 10 per cent. solution of dextrose saline is administered intravenously, usually by the drip method. Careful watch must be kept over the fluid intake and output, for there is a real danger of waterlogging the patient (Glover 1932).

The results of the investigations into the changes in serum sodium and potassium are not sufficiently conclusive to permit any definite statements at present. The changes, as in Addison's disease, suggest suprarenal insufficiency, and therapeutic measures are directed towards reversing these changes.

With Eucortone (Wilson et al. 1936) we obtained gratifying and unexpected recovery in several cases of established toxæmia. In July, 1939, Wilson suggested the use of synthetic cortical extracts, and we have used desoxycorticosterone acetate during the past three months successfully in 8 cases of established toxæmia. A very definite clinical improvement took place coincidentally with the administration of the drug. In 1 case there was no response; the child had bronchopneumonia on admission and died of severe toxæmia 130 hours after the injury. Desoxycorticosterone acetate (either D.O.C.A. or Percorten) is given in an average dose of 5 mg. intramuscularly every two hours. Like eucortone, it can also be administered intravenously by adding the contents of two or three ampoules to the reservoir of the continuous-drip apparatus.

Sepsis.—My first resident post was in the septic wards of a general hospital, and, as in many hospitals in this country, there all the burns and scalds were treated. The incidence of sepsis was high. Even in the general surgical wards of this hospital sepsis appeared at intervals in spite of all reasonable precautions. For the past year, however, we have had facilities for the isolation of scalds and burns in a side ward reserved for this purpose, and sepsis in the burnt area has ceased to exist as a serious problem.

Under ordinary conditions the invading organism is the hæmolytic streptococcus in 90 per cent. of cases. With correct treatment the organism is rarely found before the fourth or fifth day. Sepsis usually begins in areas of the coagulum which have cracked or become moist; to prevent these defects, the area is dehydrated with ether every four hours and then painted with a 1 per cent. solution of gentian violet in spirit. Should the coagulum become moist, ether and gentian violet are applied more frequently.

If it should be necessary to remove the coagulum because of underlying pus, this is done with dressings of hypertonic saline. Should hypotonic solutions be used, there is a grave danger of toxæmia developing. If pus is present, all that is usually necessary is to slit the coagulum with scissors, cleanse, dry, and recoagulate. Since the burns have been treated apart from the general surgical patients, no case has required cessation of the tannic-acid regime because of sepsis. The preservation of the coagulum (and consequently the prevention of toxæmia and sepsis) is largely a question of nursing. Children require to be firmly secured in such a manner that the coagulum is pressed upon or traumatised as little as possible. If œdema is produced in a limb by the encircling coagulum, the coagulum is incised longitudinally and dettol burn cream applied to the raw surface. This same preparation is always used in areas which tend to crack.

Since the streptococcus is the common invading organism, sulphonamides are of great value in combating gross sepsis. These drugs were given prophylactically as a routine for several months, but, since there is considerable doubt as to the value of this treatment, it has now been abandoned. The fact that several days have elapsed since the injury is no contra-indication to coagulation therapy. Several

children have been admitted to hospital a week after being scalded, showing hyperpyrexia and a generalised scarlatiniform rash. Coagulation therapy and the administration of sulphanilamide have led to an uneventful recovery.

Healing.—As a rule, the coagulum should be left until it strips off readily—usually at the end of the second week. In deep burns the coagulum may take many weeks to separate, and it may be advisable to remove it, along with the underlying slough, under a general anæsthetic. In second-degree burns and scalds one expects to find the underlying skin soundly healed on removal of the coagulum. Clean raw surfaces are treated with Trinity Ointment (eucalyptus, zinc oxide, lanoline, and soft paraffin). Desitin and cod-liver oil have also been used successfully during the stage of healing. The healing of large raw areas can be expedited by the use of Thiersch grafts, and whole-skin grafts may be necessary at a later stage, should contractures threaten to develop. By careful attention to the flexures in particular from the outset contractures should be prevented as far as possible and appropriate splintage applied.

TREATMENT OF BURNS AND SCALDS

As mentioned in the preceding paragraph, the burns and scalds are now treated in a special side ward. This is fitted with electric cages, and the temperature of the room is kept constant at 75° F. No bed-clothes touch the child, and artificial heat is supplied by the cage. The temperature is carefully regulated. No coverings or dressings are placed over the coagulum.

An extensive burn or scald yields precedence to no other emergency or urgency of treatment. There is no justification for postponing the local treatment of a scalded child while the surgeon deals with, say, two "acute abdomens." And the surgeon's duties are by no means at an end when he has completed the coagulation of the damaged area. Such a case will require unremitting care and attention from the moment of admission until the coagulum begins to separate a fortnight or three weeks later. Even after this time he is faced with the problems of contractures in some cases.

The theatre treatment is carried out as for a major surgical operation, except that the temperature of the theatre is rather above the normal level (about 80° F.). The anæsthetic of choice is gas-and-oxygen, with often a small percentage of ether. Only limited areas are dealt with at a time, for there is a rapid fall in body temperature if the child is entirely uncovered. This is often associated with a fall in the blood-pressure. With gauze moistened with warm saline all detached and blistered epidermis is removed, and the underlying surfaces are gently but rapidly cleansed, particular attention being directed to the edges of the damaged area. Soap and ether are used for cleansing only when the area is grossly contaminated or has been treated with an oily preparation before admission. A 1 per cent. watery solution of gentian violet is then painted over the raw surface. Apart from its antiseptic and coagulating action, this solution clearly demarcates the raw area. The surface is dried by a current of hot air from an electric hair-drier. Gauze soaked in a freshly made 5 per cent. solution of tannic acid is now applied, and while still moist the area is covered with a 10 per cent. solution of silver nitrate in the same manner. Immediate coagulation takes place. The area is again dried by hot air, and a further application of a 1 per cent. solution of gentian violet is made, particular attention again being paid to the edges of the damaged area. If necessary, fluid is administered while the patient is on the operating-table.

On returning to the burns ward, the child is placed under an electric cage, and excessive movements are restricted by splints or bandages. A sedative (usually heroin) is given. No covering is placed over the coagulum. Further points in treatment have been discussed in the preceding section.

RESULTS OF TREATMENT

During the past five years 76 burns and 322 scalds have been treated by one unit in the Royal Hospital for Sick Children. The average age of the patients was 2½ years. Most of the relevant facts are included in the accompanying tables.

TABLE I—CASE-MORTALITY OF BURNS AND SCALDS

Year	No. of cases		Deaths		Case-mortality		Total case-mortality
	Burns	Scalds	Burns	Scalds	Burns	Scalds	
1935	11	42	3	7	27·2 %	16·6 %	18·8 %
1936	8	39	0	8	—	20·5	17·0
1937	14	71	3	10	21·4	14·0	15·3
1938	21	81	0	8	—	9·8	7·8
1939	22	89	1	7	4·5	7·8	7·2

TABLE II—CAUSES OF DEATH FROM BURNS AND SCALDS

Year	Shock	Toxæmia	Sepsis	Pneumonia	Other causes
1935	1	4	2	3	—
1936	3	3	—	1	1 diphtheria
1937	1	9	1	1	—
1938	2	5	1	—	—
1939	1	5	1	—	1 erosion of œsophagus,&c.*

*This child swallowed boiling water, as well as scalding his face, chest, abdomen, and thighs.

TABLE III—INCIDENCE OF TOXÆMIA AND SEPSIS IN BURNS AND SCALDS

Year	Incidence of toxæmia	Percentage	Incidence of sepsis	Percentage
1937	28 cases	32·9	28 cases	32·9
1938	21 ,,	20·6	12 ,,	11·7
1939	17 ,,	15·3	7 ,,	6·3

There has been a steady decrease in the case-mortality during the period in question; but, on considering the deaths during the past year, one feels that even the present case-mortality of 7·2 per cent. could be lower. Three of the children, I feel, could not have been saved. One, a boy aged 8, swallowed boiling water besides scalding his face, chest, abdomen, and thighs. Necropsy revealed severe ulceration of the œsophagus and hypostatic pneumonia. An infant, aged 11 months, with a scald involving 10 per cent. of the body surface, developed an abscess of the thigh two days after admission. The coagulum remained sound, but she died of septicæmia on the thirteenth day. The third child had bronchopneumonia and gastro-enteritis on admission. She was 17 months old and had sustained a burn involving 40 per cent. of the body surface. Death took place from toxæmia on the seventh day. Of the five remaining deaths, two children died untreated and one very inadequately treated.

There has been a great increase in the number of cases admitted to the wards. This is largely explained

by the fact that many children are being sent from the three teaching general hospitals for treatment in the Children's Hospital.

It is difficult to compare the figures of deaths from burns with the corresponding figures for scalds. From my own experience I find that the prognosis is much better in a burn than in a scald of corresponding extent. In fact, in deep burns toxæmia (by far the commonest cause of death in childhood) is rare. Severe toxæmia is to be expected in extensive superficial injuries (Lloyd 1931), probably because the damage extends only to the vascular superficial layers of the dermis. The toxins formed from the breaking down of burnt tissue is thus readily absorbed into the circulation. In deeper burns the tissues are adequately coagulated by the action of the heat, and toxæmia does not develop to the same extent.

The decrease in the incidence of toxæmia (table III) appears to be due to the constant attention given to the coagulum. As regards sepsis, several factors are involved: careful cleansing in the theatre, treatment of the cleaned surface with gentian violet before "tanning," isolation of cases in burns ward, the use of sulphanilamide, and the aftercare given to the coagulum.

CONCLUSIONS

The choice of a coagulant is a matter of personal experience, and each surgeon should use the method which gives him the best results. I have given the reasons for our choice of tannic acid and silver nitrate, and until we find a superior method we will continue with our present technique.

The results during the past year have completely justified the use of a side ward solely for the treatment of burns and scalds.

Desoxycorticosterone acetate has proved very valuable in the treatment of toxæmia, and I advocate its use in all cases which develop this complication of burns.

SUMMARY

(1) Various congulants used in the treatment of burns and scalds are evaluated.

(2) The clinical stages and the appropriate treatment of each stage are described under primary shock, secondary shock, toxæmia, sepsis, and healing.

(3) The routine treatment is described in detail for children with burns and scalds. This includes a special ward kept at a constant temperature of 75° F. and fitted with electric cages to supply artificial heat to the patient. No bed-clothes are allowed to touch the child. No coverings or dressings are placed over the coagulum. After the application of gentian violet to the cleansed area, tannic acid and silver nitrate are used together as coagulants. Local as well as general treatment must be given early.

(4) In the last five years this treatment has reduced the case-mortality from about 19 per cent. to about 7 per cent. and the incidence of toxæmia and of sepsis from about 33 per cent. to about 15 per cent. and about 6 per cent. respectively.

I wish to thank Mr. Matthew White, in whose unit all the cases were treated; Prof. W. C. Wilson for encouragement and advice; and the house-surgeons, sisters, and nurses, whose excellent team work has largely contributed to the improvement in our results.

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HEREDITARY FAMILIAL PURPURA SIMPLEX

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THERE is an extensive literature on hereditary tendencies to severe bleedings, but I have not found any mention of a hereditary familial purpura simplex. Recently I have seen eleven families which included several members, mostly females, who showed spontaneous ecchymoses.

Description of Families

At least one affected member of each family was observed as an inpatient for several weeks in 1938–39, except family X (see below), and followed up. All members who coöperated were examined repeatedly. Pedigrees of the family were drawn up and checked where possible. In all cases the husband of an affected female and his ancestry were found not to show purpura, and this side of the family is not further described. There were no cousin marriages. The patients A. B., C. D., E. F., and G. H. described below, all housewives, were the most intensively studied members of the first four families seen. They all had purpura with normal bleeding-time and coagulation-time, efficient clot-retraction, and normal values for protein and fibrinogen in the blood. They showed high values for non-protein blood-nitrogen. Their blood-platelet counts were normal. The capillary-resistance test was positive. They showed a large bruise after the intradermal injection of moccasin snake venom (Peck, Rosenthal, and Erf 1937) within one hour. The Wassermann and Kahn reactions of the blood were negative. In families V–XI some of the investigations enumerated above were not done. In all families except I and IV the spontaneous ecchymoses were painless. Other data and investigations are given in the table, and additional facts are recorded in the text. (Individuals marked with an asterisk were examined personally.)

FAMILY I

Purpura simplex was found in three generations of a family, appearing at an earlier age in each successive generation.

A. B.,* aged 28, was admitted in June, 1938, for acute tonsillitis, from which she recovered. While she was in the ward, ecchymoses were seen on her limbs every few days. She said such "bruises" had appeared frequently during the last five years and were ¼–1 in. in diameter. They had occurred in the absence of knocks or blows, and she did not bruise easily after

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DATA IN MEMBERS OF FAMILIES WITH PURPURA SIMPLEX

Member	Age	Age at which ecchymoses began	Age at menopause	Red blood corpuscles (millions)	Hæmoglobin (per cent.)	Colour-index	Leucocytes (thousands)	Platelets (thousands)	Capillary-resistance test
A. B.	28	23	..	(*a*) 4·44 (*b*) 4·66	80 90	0·9 0·97	7·3 12·7	175 250	+ ..
A. B.'s mother	62	47	51	..	..	..	..	170	+
A. B.'s son	5	5	..	..	74	..	..	225	−
A. B.'s daughter	7	5	..	..	..	..	..	250	−
C. D.	53	45	45	(*a*) 5·0 (*b*) 4·88	90 94	0·9 0·96	4·9 6·2	.. 270	+ ..
C. D.'s sister	52	†51	40	5·0	100	1·0	9·0	245	+
C. D.'s son	28	†23	..	5·12	102	1·0	11·0	300	+
C. D.'s daughter	26	24	..	4·0	80	1·0	9·3	310	−
E. F.	48	43	45	4·6	76	0·8	7·5	230	+
E. F.'s sister	43	41	42	..	..	..	..	..	+
G. H.	46	42	46	4·68	80	0·85	7·3	150	+
G. H.'s daughter	24	11	..	..	..	..	..	..	−
G. H.'s daughter	22	†12	..	..	..	..	..	..	..
G. H.'s daughter	11	10	..	..	..	..	..	..	−
I. J.	43	43	43	5·6	108	0·98	17·7	230	+
I. J.'s mother	69	64	54	..	..	..	..	..	+
K. L.	58	55	51	5·0	92	0·92	9·0	250	+
K. L.'s daughter	32	24	..	..	..	..	..	..	−
M. N.	35	33	..	..	..	..	..	..	+
M. N.'s sister	42	37	..	..	..	..	..	..	+
O. P.	66	58	42	5·48	88	0·80	8·7	..	+
O. P.'s sister	60	?	?	..	..	..	..	..	..
Q. R.	43	40	43	5·61	94	0·84	7·6	250	+
Q. R.'s mother	78	73	?	..	..	..	..	..	..
S. T.	18	10	..	..	..	..	..	..	−
S. T.'s twin sister	18	10	..	..	..	..	..	..	−
U. V.	22	14	..	(*a*) 3·46 (*b*) 2·7	68 ..	0·98 ..	7·5 16·6	.. 140	+ ..
U. V.'s mother	53	48	38	..	..	..	..	..	−

Differential white-cell counts were not abnormal. Counts of blood-cells and platelets are per c.mm.

Technique of capillary-resistance test: a pressure of 100 mm. Hg was applied to the upper arm in adults, or 80 mm. in children, and maintained for three minutes. After another three minutes the new petechiæ were counted. The appearance of 20 or more petechiæ was called a positive (+) result.

In A. B., C. D., E. F., and G. H. the non-protein nitrogen was 56, 52, 68, and 70 mg. per 100 c.cm. of whole blood respectively.

Certain other data, including any abnormal blood-pressures, are given in the text.

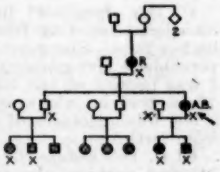
injuries. Her mother and children also showed such "bruises." Observation confirmed her statements. Ecchymoses were preceded by stiffness and aching in the segment of the limb involved, lasting several hours, but the pain subsided on their appearance. An ecchymosis did not fade on pressure, was hardly ever raised above the surface of the skin, was bright red at first, and faded in about four days, changing through purple and brown. A. B.'s skin was rarely free from petechiæ.

At 14 she had had a few moderate epistaxes. She had been well until the birth of her second child in 1933. In 1935 Gilliam's operation was done for retroverted uterus. Thence she had severe menorrhagia. A hysterectomy was done in November, 1938. The endometrium was hypertrophied, there were numerous small cysts in the ovaries, and the cervix was eroded. There was no excessive bleeding at the operations or after cuts or extractions of teeth.

In March, 1939, there was an attack of pain in the left leg, thigh, and abdomen, accompanied by moderate vaginal hæmorrhage, and swelling and ecchymoses in the left leg. The pain and swelling lasted thirty-six hours. In May, 1939, there suddenly appeared a raised painful ecchymosis over the right side of the forehead.

A. B. had two children. Her daughter* had had spontaneous ecchymoses (S.E.) for two years and her son* for six months. Her son, but not her daughter, bruised easily (though not extensively) after pinching or knocks. The son was further observed when admitted for tonsillectomy, and his mother's statements were confirmed. There was no undue bleeding at operation. The children were otherwise healthy. A. B.'s mother* showed similar petechiæ and S.E. She had had epistaxes in childhood, but there was no other hæmorrhagic tendency. She had had rheumatic fever at 17. She had no siblings. Nothing noteworthy was known about A. B.'s grandparents. In A. B., her daughter, and her mother the blood-bilirubin was normal.

A. B. had two brothers. The elder,* aged 36, was fit and had no abnormal bleeding. His capillary-resistance test (C.R.T.) was negative. His daughter,* elder son,* and younger son, aged 10, 8, and 5 respectively, did not bruise or bleed unduly. A. B.'s younger brother, aged 34, and his three children were said to be normal.



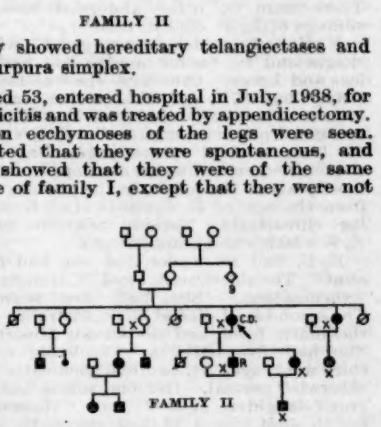
FAMILY I

In the genealogical tables square = male; circle = female; diamond = sex unknown, the number below representing siblings. R = associated with a history of acute rheumatism, severe prolonged "rheumatic" pains, or rheumatoid arthritis. × = personally investigated by the author. • = miscarriage or stillbirth. Black symbols indicate persons with purpura. Shaded symbols indicate persons who do not yet show purpura but are still too young to be declared free from the disease. Symbols intersected by an oblique stroke indicate children who died under 7 years of age.

FAMILY II

One family showed hereditary telangiectases and hereditary purpura simplex.

C. D.,* aged 53, entered hospital in July, 1938, for acute appendicitis and was treated by appendicectomy. On admission ecchymoses of the legs were seen. It was elicited that they were spontaneous, and observation showed that they were of the same type as those of family I, except that they were not preceded by pain. Skin petechiæ were also present. The patient had frequent epistaxes, but round her nose were conspicuous telangiectases. There was no tendency to other abnormal bleeding or bruising. In October an unexplained œdema of the legs began, clearing after six weeks.



FAMILY II

C. D.'s son* was said to have had rheumatic fever at 4. He had a history of occasional S.E. mostly over the right knee. Examination showed skin petechiæ and extensive facial telangiectases. There was no history of other abnormal bleeding.

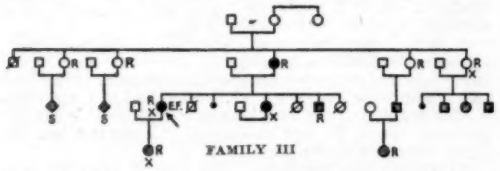
C. D.'s daughter* had had many epistaxes and occasional bleeding from conspicuous telangiectases on her face. She gave a history of S.E. and showed petechiæ. Her menstrual periods were always scanty. I was present at the birth of her first child, a male. There was no abnormal bleeding. Her baby* had a few telangiectases of the nose and occipital region from birth.

Of C. D.'s sisters the eldest died at 51, and nothing abnormal regarding her or her son was known. The second sister,* aged 54, showed facial telangiectases, but there were no abnormal bleedings. Her C.R.T. was positive. Her son and daughter were said to be normal. The youngest sister,* aged 52, had facial telangiectases, S.E., and petechiæ. Her daughter,* aged 9, had epistaxes but was otherwise normal. C. D.'s three other siblings died in infancy. Nothing relevant was known about C. D.'s parents, grandparents, aunts, and uncles.

FAMILY III

A mother and her two daughters had purpura simplex at the climacteric. The mother and her four sisters had rheumatic manifestations.

E. F.,* aged 48, was admitted in August, 1938, for erythema nodosum. She had had rheumatic pains in the limbs for years, and for six months had suffered from pains in the ankles, knees, and elbows. Her



FAMILY III

husband died from pulmonary tuberculosis twelve years ago, but repeated investigation of E. F. for tuberculosis had been negative. On examination E. F. had skin petechiæ, and a history was elicited of S. E., which were seen subsequently. They were not preceded by pain. Menses had always been scanty. There were no other abnormal bleedings. Three siblings of E. F. died in infancy.

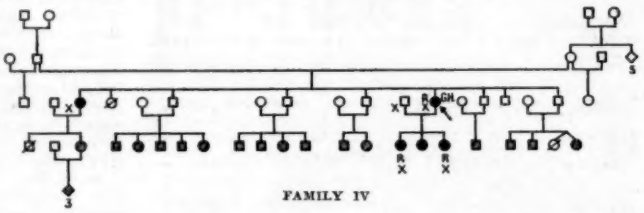
E. F. had one daughter,* aged 17, who had menorrhagia and for twelve months had had pains in the legs and knees. Otherwise she was normal. E. F.'s sister* had S.E. E. F.'s brother, aged 38, was not known to have any abnormal bleedings but was said to suffer from "rheumatism." E. F.'s mother died at 63 from cerebral hæmorrhage. She suffered from rheumatoid arthritis and developed masses of bruises mostly about the joints, in the absence of any injury, from the age of 51 onwards—i.e., from the time of her climacteric. Nothing relevant was known in E. F.'s father and grandparents.

E. F. had no uncles, but she had four maternal aunts. The eldest aunt, aged 73, is normal apart from "rheumatism." She had five normal children. The second aunt died at 63 in Australia. She had had rheumatic fever and no known abnormal bleeding. She had five children, "probably normal." The third aunt, aged 51, had had rheumatic fever but was otherwise normal. Her one son is healthy, but her grand-daughter, aged 6, had "rheumatism." The fourth aunt,* aged 55, had rheumatic pains but no S.E. Her C.R.T. was positive. Her two sons and one daughter were normal. In June, 1939, E. F. told me that her daughter had recently had attacks of "bruises," almost certainly spontaneous.

FAMILY IV

Of two sisters one had Schönlein-Henoch purpura and the other purpura simplex. The latter had had rheumatic fever, and she had three daughters all with purpura simplex. Two daughters have previously had rheumatic fever.

G. H.,* aged 46, was admitted to hospital for menopausal faintness and giddiness in September, 1938. She had had rheumatic fever at 16 and 20 and rheumatic



FAMILY IV

pains for eleven years. She was rarely free from petechiæ and showed S.E. preceded by an aching in the limb concerned. Her menstrual loss was always abundant. There were no other abnormal bleedings or bruisings.

G. H. had three daughters. Her eldest daughter* had rheumatic fever at 11, 19, and 23. Since her first attack she has had frequent S.E. ½–2 in. in diameter on the shoulders, elbows, and knees accompanied by pain and swelling of the joints. She also bruised easily, though not extensively, on slight injury. There was no menorrhagia. Examination revealed mitral stenosis and aortic regurgitation without cardiac failure.

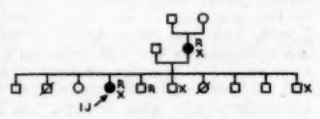
The second daughter is away from home and has hitherto been unavailable for examination. She has shown S.E. for ten years. The third daughter* had rheumatic fever at 8, and the mother said that she had S.E. The daughters do not bleed unduly from cuts.

G. H.'s sister,* aged 59, bled for a long time after cuts and bruised easily. For twenty years her elbows and knees have swelled intermittently. For eleven years she has had "heart trouble." Her blood-pressure was 170/100 mm. Hg. During this time large S.E. have appeared every few months on knees, ankles, and elbows, and large abdominal swellings have occurred, lasting some three weeks and being followed invariably by severe rectal hæmorrhage, which gives relief. On examination in October there was a fading ecchymoses over the right knee 4 in. in diameter. She clearly had Schönlein-Henoch purpura. Unfortunately she only permitted a C.R.T., which was negative, and would not coöperate further. G. H.'s parents, grandparents, uncles, aunts, six brothers, and their children were not known to have any relevant abnormality.

FAMILY V

A mother and her daughter had purpura simplex.

I. J.,* aged 43, was kindly referred to me by Dr. J. N. Morris. She had had S.E. for six months and had complained of pain of the sciatic type in the right leg for nine months. She had had menorrhagia. I. J.'s mother* had noticed S.E. for five years. She complained of severe pain in the shoulders and knees. Until the age of 21 epistaxes had been frequent and severe. She also had had menorrhagia. Her blood-pressure was 220/120 mm. Hg. A brother of I. J. had suffered from rheumatic fever. One other brother* had a negative C.R.T. Otherwise there was nothing noteworthy about the family.

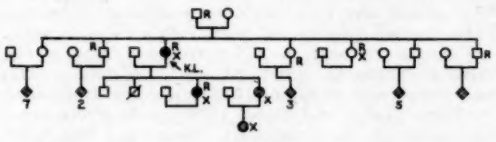


FAMILY V

FAMILY VI

A mother and her daughter had purpura simplex. Arthritis and rheumatic fever were prominent in this family.

K. L.,* aged 58, was admitted for rheumatoid arthritis. She had had S.E. for three years. She used to have menorrhagia. There was no undue bleeding from cuts or operations, but she believed



FAMILY VI

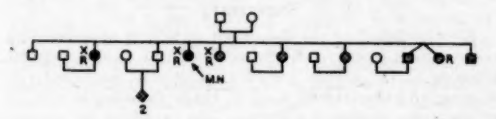
she bruised easily. Her eldest brother, aged 62, had "heart-disease" and synovitis of the knees, the second died of pulmonary tuberculosis at 46, and the youngest brother, who had suffered from rheumatic fever, died suddenly at 44. One sister,* aged 49, had osteo-arthritis of her knees (C.R.T. negative), and another, aged 44, had severe rheumatoid arthritis.

K. L.'s elder son had tuberculous cervical glands. Her elder daughter* had S.E., suffered from epistaxes every few months, and between the ages of 18 and 22 had severe menorrhagia. She complained of severe rheumatic pains in the neck, upper spine, knees, and ankles. There was no other unusual bleeding or bruising in this family, but K. L.'s younger daughter* had a positive C.R.T.

FAMILY VII

Purpura simplex developed in two sisters. Rheumatic features were present in the sisters and two siblings.

M. N.,* aged 35, showed S.E. At 8 she suffered from rheumatic fever. Her elder sister* had S.E. and "rheumatic" pains in the limbs. A younger



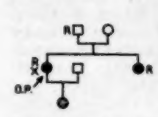
FAMILY VII

sister,* aged 33, possibly had S.E. but this was not confirmed. She had "rheumatic" pains and a positive C.R.T. The youngest sister, aged 27, had suffered from rheumatic fever and chorea. There was nothing else noteworthy about the family.

FAMILY VIII

Purpura is described in two sisters.

O. P.,* aged 66, showed S.E. She also bruised easily and had frequent epistaxes. She had suffered from rheumatoid arthritis for the last two years. It is noteworthy that she developed hæmaturia after gold therapy, and during the course of an operation for cataract there was considerable extravasation of blood into the eye. She assured me that her sister, aged 60, living in Hull, also had S.E. and "rheumatism," and that her father suffered much from "rheumatism." O. P.'s daughter died of tuberculous meningitis at 28.

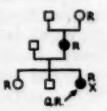


FAMILY VIII

FAMILY IX

A mother and her daughter had purpura, associated with "rheumatism" and rheumatoid arthritis.

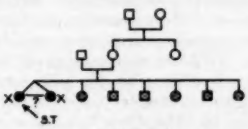
Q. R.,* aged 43, showed S.E. and petechiæ. She had severe rheumatoid arthritis for the last five years. At 16 she had sanatorium treatment for pulmonary tuberculosis. There had been no active tuberculosis since. She bruised easily after moderate injuries but did not bleed unduly after cuts. She had had severe menorrhagia. Her sister, 49, had "rheumatism" but no unusual bruising. Her mother suffered severely from "rheumatism" and had S.E. There was a history of rheumatic fever in Q. R.'s grandmother.



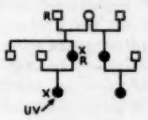
FAMILY IX

FAMILY X

Twin sisters (S. T.) of 18, probationer nurses, showed S.E. from the age of 10. They each had a negative C.R.T. There was no history of unusual bleeding or bruising or of rheumatism in the family.



FAMILY X



FAMILY XI

FAMILY XI

A mother and her daughter (U. V.), the mother's half-sister, and the latter's daughter all had purpura. U. V. died from chronic nephritis accompanied by widespread hæmorrhages. U. V.'s mother had had hæmoptyses.

U. V.,* aged 22, was kindly referred to me by Dr. B. J. Freedman. She gave a history of scarlet fever and nephritis at the age of 10 months. From the age of 14 years S.E. appeared on her limbs about once a month. Three months before admission she had a left subconjunctival hæmorrhage. Two weeks before admission her nose bled profusely, and a week later numerous ecchymoses appeared on her limbs and there was much rectal hæmorrhage. On admission her blood-pressure was 300/200 mm. Hg, her abdomen was generally tender, and her urine contained blood. The bleeding-time, coagulation-time, and clot-retraction were normal. The blood Wassermann and Kahn reactions and the moccasin snake-venom test were negative. She died a month later in uræmic coma.

At autopsy (done by Dr. S. Robinson) granular contracted kidneys were found, with many small abscesses in each cortex and numerous hæmorrhages in each dilated pelvis. There was great hypertrophy of the left ventricle. There were hæmorrhagic erosions in stomach and intestines and an old hæmorrhage in the capsule of the spleen.

U. V.'s mother,* aged 53, had several hæmoptyses at 22. She had been in a tuberculosis sanatorium for two years. Radiography of her chest in 1938 at St. Stephen's Hospital suggested congenital cystic disease of lung but no evidence of active or old tuberculosis. (She refused admission for further investigation.) She showed S.E. and for the past year had had rheumatoid arthritis. She said that her half-sister and her half-sister's daughter had S.E. (U. V.'s grandmother married twice).

All the persons described above took seemingly adequate diets, except I. J. (family V) and U. V.'s mother (family XI). After the administration of 300 mg. of vitamin C daily by mouth for three weeks

to A. B., C. D., E. F., and G. H. the ecchymoses did not cease, but the C.R.T. tended to become negative.

Discussion

Spontaneous ecchymoses (S.E.) are described in eleven families: in members of successive generations in eight families and in sisters of the same generation only in three families. The S.E. diminished in number (but did not disappear) when the patient was confined to bed. Orthostatic purpura is known to occur—e.g., Achard and Grenet (1904)—and purpura can be provoked by muscular effort (Sézary, Horowitz, and Rivoire 1931). It is remarkable that no ecchymoses were seen on the trunk, though petechiæ were often observed there. The table shows that anæmia was not constant in the purpuric cases, and when seen it occurred in the presence of complicating disease.

Spontaneous ecchymoses occur at the climacteric (Simpson 1938), although rather infrequently, according to Peck et al. (1937). It is noteworthy that ecchymoses first appeared at or near the climacteric in five families. In two other families a member first developed S.E. near the climacteric, but that was not the first appearance of purpura in the family. In later generations ecchymoses appeared at earlier ages in seven families. (I have also observed other cases of spontaneous ecchymoses at the climacteric, in which there was no evidence of familial or hereditary tendency.) In the families described I examined 25 purpuric members. The capillary-resistance test was positive in 16 and negative in 9. The test was also positive in 4 non-purpuric members of these families.

The frequency of rheumatic fever and rheumatoid arthritis in these families was striking. Thus purpuric members gave a history of rheumatic fever in four families and of rheumatoid arthritis in five other families. Non-purpuric relations had had rheumatic fever in five families and rheumatoid arthritis in one family. Only in family X (that of the twins with purpura simplex) was there no close relation with rheumatic fever or rheumatoid arthritis. But Pratt (1908) concluded that there was probably no relationship between rheumatism and purpura, although he accepted the connexion between purpura and arthritis. Yet Mackenzie (1898) found 61 out of 200 consecutive cases of purpura to be associated with rheumatism. I believe that there is a significant relationship between purpura, rheumatic fever, and rheumatoid arthritis.

It is to be remarked that E. F.'s husband died of pulmonary tuberculosis, and that E. F. had erythema nodosum, that close relations of K. L. had tuberculosis, that O. P.'s daughter died of tuberculous meningitis, and that Q. R. and the mother of U. V. had been treated for pulmonary tuberculosis.

What is the nature of this familial purpura? It is clearly not the hereditary hæmorrhagic thrombasthenia of Glanzmann (1918)—subsequently called hereditary pseudohæmophilia (Schlicke and Hall 1938)—because typical features, such as severe bruising from slight trauma, recurrent visceral hæmorrhages, and prolonged bleeding-time, were absent. No member of any family showed a picture resembling pseudohæmophilia except U. V. when she was dying from chronic nephritis—and U. V.'s bleeding-time was normal. Only O. P. and Q. R. were found to bruise at all easily on moderate injury. Also, in families IV and VI members considered themselves to bruise more easily than average, but there was certainly nothing extreme. There was a history of epistaxis in three families, menorrhagia in three, and both epistaxis and menorrhagia in one family, but these bleedings were not often severe. The condition I have described is essentially a familial hereditary purpura simplex seen mostly in females. Willan (1808) and Bateman (1817) described and illustrated purpura simplex, and Pratt (1908, 1927) described a chronic form. Ottenberg (1918) reported a chronic intermittent variety mostly in women otherwise healthy. Tidy (1926, 1937) stated that purpura should never be regarded lightly. He considered purpura simplex and purpura hæmorrhagica to be grades of severity of the same condition. Observations are being continued, with Tidy's views in mind.

Purpura simplex is not mentioned among the familial purpuras described by Goldstein (1937) and Bailey and McAlpin (1935); nor is it mentioned by Witts (1934) and Gates (1929), who wrote comprehensively on hereditary bleeding. The only references I have traced are by Bauer (1868) and Pratt (1908). Bauer stated that families were seen in whom members at a given age suffered from purpura. He described a mother, normal apart from menorrhagia, whose eldest daughter, originally presenting purpura simplex, later developed severe visceral hæmorrhages and died at 22. Two other daughters had purpura simplex only. Pratt (1908) quoted Förster, who saw purpura in three sisters, and Dohrn, who reported purpura in a mother and her newborn child, but the nature of the purpura is not stated in either family. Familial purpura simplex can hardly be uncommon, for I saw eleven families in twelve months. But medical advice was not sought for this condition, and patients were not always aware that other relations were affected. The group of hereditary bleeding tendencies is more complete with hereditary purpura simplex added. The latter seems the most benign form of hereditary hæmorrhagic diathesis. At the other extreme is hæmophilia, and between them comes pseudohæmophilia. The association of hereditary telangiectasia with hereditary purpura in one family is striking. One wonders if the association is fortuitous, or if there is a link between them.

Summary

Eleven families are described in whom spontaneous ecchymoses developed, mostly but not exclusively in females. In eight families purpura occurred in successive generations, and in three families in sisters of the same generation only. The capillary-resistance test was often positive. Platelet counts, bleeding-time, coagulation-time, blood-fibrinogen, and clot-retraction were normal where tested. Other tendencies to abnormal bleeding or bruising were not often present and were rarely severe; but one female with purpura simplex died of a chronic nephritis associated with widespread hæmorrhages. One family also showed hereditary telangiectasia. Ecchymoses first appeared in five families about the time of the climacteric, and they came on at earlier ages in the next generation in seven families. The ecchymoses were frequently associated with rheumatoid arthritis and rheumatic fever. The condition is regarded as a hereditary familial purpura simplex.

I have pleasure in thanking Sir Frederick Menzies, medical officer of health to the London County Council, and Dr. D. S. Sandiland, medical superintendent of St. Stephen's (London County Council) Hospital, for permission to publish this paper, Dr. G. W. Goodhart, of the London County Council group laboratory, for pathological investigations, and the medical and nursing staff of the hospital for their coöperation.

References at foot of next page

VINESTHENE ANÆSTHESIA IN GENERAL PRACTICE

By John Elam, M.R.C.S.

VISITING ANÆSTHETIST TO THE WELLHOUSE HOSPITAL, BARNET

Most anæsthetics in this country are administered by general practitioners, and the economic aspect of their administration is very prominent. The tendency is to avoid the use of ether and chloroform so far as possible and to rely on nitrous-oxide-and-oxygen anæsthesia, reinforced when necessary by ether and by premedication with sedative drugs. Without modern and expensive apparatus, however, we cannot hope to give really satisfactory gas-and-oxygen anæsthesia for major surgery, and the general-practitioner anæsthetist must rely on those anæsthetics which can be used with less expensive apparatus. The fees received for anæsthesia in general practice do not allow of the purchase of the most modern machines; so the general-practitioner anæsthetist cannot compete with the specialist anæsthetist, who uses delicate and expensive apparatus.

The introduction of vinesthene has greatly reduced the difficulties associated with anæsthesia, because the addition of small quantities of vinesthene or of vinesthene mixture to gas-and-oxygen delivered from a relatively simple apparatus, such as a Boyle's machine, makes just the difference between good and bad anæsthesia, renders the administration extremely easy, and frees the administrator from many of his anxieties.

It is therefore unfortunate that the use of this anæsthetic is still far from general, and I feel that if practitioners were fully aware of the immense advantages of vinesthene and vinesthene mixture, they would readily adopt them. The results of the original investigations carried out on vinesthene were published by Shipway (1935).

Vinesthene is made up in two forms: (1) pure vinesthene in glass capsules containing 3 c.cm. or in small bottles containing 25 c.cm., and (2) mixed with ether in the proportion of 25 per cent. of vinesthene and 75 per cent. of ether in 8 oz. bottles. This vinesthene mixture has certain advantages, because pure vinesthene, once the bottle has been opened, is unstable and cannot be kept, but the vinesthene mixture appears to be as stable as ether by itself.

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METHODS OF ADMINISTRATION

Having had experience of the use of vinesthene and of vinesthene mixture in some 2000 cases, I am convinced of its immense value for anæsthesia in general practice. There are various ways of administering vinesthene, and I found that one of the most satisfactory methods was to empty one or two glass capsules—i.e., 3 or 6 c.cm.—of vinesthene into a Clover's inhaler, thus using a closed method of anæsthesia. Hadfield (1938) advised against this method because he considered it dangerous. I have not personally had any reason to consider this method dangerous but have not cared to disregard his advice. I do not, therefore, use vinesthene in the Clover except in connexion with Boyle's machine. When this method is adopted, the Clover is inserted between the angle-piece at the end of the tubing leading from the Boyle's machine and the face-piece, 3–6 c.cm. of vinesthene is then inserted into the Clover, and oxygen is allowed to bubble through two holes in the mixing-bottle and nitrous oxide through five holes. After about four breaths of this mixture, the Clover dial is slowly turned to 1½, and in about twenty breaths the patient is fully anæsthetised.

Another satisfactory means of using vinesthene is Harris's (1938) dripper. This is attached to Boyle's machine and holds one 25 c.cm. bottle of vinesthene and can be set to deliver so many drops a minute.

Anæsthetics in general practice are administered for a variety of reasons: (1) for the treatment of accidents; (2) in general surgery; (3) for special operations; and (4) for midwifery.

Treatment of accidents.—Most practitioners are attached to a local hospital, to which are brought more or less seriously injured patients from road accidents. In most cases it is necessary to administer anæsthetics, and the anæsthetic of choice is usually gas-and-oxygen. The machine in general use is usually a Boyle's apparatus, which cannot really be described as a gas-and-oxygen machine; but, if a very small quantity of vinesthene or of vinesthene mixture is added to the gas-and-oxygen, very satisfactory gas-oxygen-vinesthene anæsthesia can be obtained from Boyle's apparatus. If a Clover is used in conjunction with the Boyle's machine, one or two glass capsules are broken and emptied into the Clover, which is used as already described. This is a satisfactory and economical method of using pure vinesthene for short cases.

If the case is likely to be long, it is better to fit a 25 c.cm. bottle of vinesthene to the Harris's dripper. I have usually found that the vinesthene dripper should be set to deliver thirty drops a minute, which can be added to the gas-and-oxygen, and this gives satisfactory anæsthesia for the treatment of accident cases. The patient is readily anæsthetised, there is little or no vomiting, and consciousness is quickly regained.

General surgery.—The operations of general surgery may be divided into those requiring complete relaxation and those not requiring it. Where abdominal relaxation is required, I have found it more satisfactory to use vinesthene-ether mixture, about 24 drachms being placed in the chloroform bottle of Boyle's machine. Gas-and-oxygen is then blown over the mixture, and a satisfactory anæsthesia is obtained.

If profound relaxation is required, or for resistant patients, I induce the anæsthesia with Clover's inhaler in conjunction with Boyle's machine. About 2 oz. of vinesthene mixture is placed in the Clover, which is turned to 0. The dial of the Clover is gradually turned up to 2, and after about five minutes the

patient is fully anæsthetised. A Magill's tube is then introduced through the nose and coupled up to the Boyle's machine. The gas-and-oxygen is then allowed to blow over the vinesthene mixture in the chloroform bottle, and sufficient relaxation is usually obtained in this way. If relaxation is not sufficient, a little ether can be added from the ether bottle. For operations requiring profound relaxation and for difficult patients ether may be freely used with safety.

Vinesthene (pure) can be of great assistance in anæsthetising the very ill patient who is a bad surgical risk, such as one with a neglected perforated gastric ulcer, intestinal obstruction, or severe internal hæmorrhage. Ether or chloroform will undoubtedly add to the heavy burden the patient is already carrying, yet gas-and-oxygen will often not suffice. In attempting to control the anæsthesia with gas-and-oxygen alone there is a temptation to allow some degree of anoxæmia to develop, which the patient will not tolerate. If vinesthene be added to the gas-and-oxygen, however, an ample supply of oxygen can be administered, the patient kept a good colour, and adequate relaxation obtained. It may be necessary to add a little vinesthene mixture from the chloroform bottle for a short period, but very small quantities will suffice.

Gas-oxygen-vinesthene appears to have no more injurious effect than gas-and-oxygen alone, and the administration becomes much easier. It has been assumed that a Boyle's machine is available, as is usually the case today in most hospitals however small; but, should this not be the case, the vinesthene-ether mixture can be placed in the ether bottle of a Shipway's machine and used as if it were ether. The open method is also suitable, the induction being easy and the maintenance of the anæsthesia smooth.

When abdominal relaxation is not required, either gas-oxygen-vinesthene or gas-oxygen-vinesthene-ether mixture may be used. The gas-oxygen-vinesthene mixture has been found very suitable for operations on the skull, such as decompression; for dissection of tonsils; dental operations; and cæsarean section.

I do not think that vinesthene or vinesthene mixture offers any advantages over ethyl-chloride-ether for tonsil guillotine operations.

I have found the gas-oxygen-vinesthene technique of very special value in three special operations: (1) thyroidectomy; (2) drainage of empyemata; and (3) suprapubic cystotomy.

Thyroidectomy.—For this operation premedication with Avertin followed by gas-and-oxygen has been found most satisfactory, but in many provincial hospitals there are certain difficulties in the way of using avertin, without which gas-and-oxygen will hardly suffice. When, however, vinesthene is added to the gas-and-oxygen, the premedication becomes of less importance.

I have found premedication with Hyoscine Compound A, Nembutal (gr. 3 by mouth), or Sodium Soneryl (4 capsules by mouth) satisfactory. Gas-and-oxygen is then administered by the Boyle's machine, and vinesthene by the Harris dripper at the rate of twenty-five to thirty-five drops a minute. An excellent anæsthetic results, and there is no straining during the operation. The flow of vinesthene may be cut off from time to time, so that one 25 c.cm. bottle usually suffices for the operation. There is usually no postoperative vomiting.

Drainage of empyemata.—The anæsthetic for this operation always presents difficulties, ether and chloroform being unsuitable and local infiltration sometimes distressing to the patient. Here again gas-oxygen-vinesthene sequence proves invaluable. Premedication with morphine sulphate gr. $\frac{1}{4}$ is helpful, and then gas-oxygen-vinesthene is administered. Very little vinesthene is required, and, if the dripper is set to deliver thirty drops a minute for the first five minutes, the vinesthene can usually be then turned off and the operation continued with gas-and-oxygen.

I have found that the eye signs with vinesthene are a little misleading, and a little practice is required before one knows exactly at what depth the anæsthesia had been produced.

Suprapubic cystotomy.—There is one operation in surgery for which I have found pure vinesthene of inestimable value, and that is suprapubic cystotomy in elderly and ill patients sent to hospital with acute retention. At one time I used to try to anæsthetise these patients for suprapubic drainage with gas-and-oxygen alone, but I found that this was not altogether satisfactory, because these patients do not tolerate the least degree of anoxæmia, and they develop laryngeal spasm when the bladder is opened. If a little pure vinesthene is added to the gas-and-oxygen, a most satisfactory anæsthetic results. The gas-and-oxygen is turned on and the Harris's dripper set to deliver about thirty drops a minute. By this means the patient is kept a good colour, and the surgeon obtains sufficient relaxation to introduce the tube into the bladder.

In midwifery vinesthene and vinesthene mixture have been found extremely useful for examination under an anæsthetic, external version, forceps delivery, repair of perineum, and cæsarean section. It is extremely desirable that, when a patient is to be examined under an anæsthetic before labour begins, she shall not be made ill by the anæsthetic, and I have found that gas-and-oxygen and pure vinesthene is a most satisfactory technique.

For external version or for forceps delivery some relaxation is required, and here open vinesthene mixture is suitable. A standard ether-dropper cork just fits into the 8 oz. bottles of vinesthene mixture. The face-pad is placed over the patient's face, and then the open mask, on which the vinesthene mixture is dropped from an ether dropper at a speed at which individual drops can just be distinguished, and in about twenty breaths the patient is anæsthetised and the mixture can be poured on rather more quickly. Relaxation is obtained with a very light anæsthesia, there is little or no vomiting, and the patient readily recovers.

For cæsarean section it is desirable that the patient should not be too deeply anæsthetised, and yet that sufficient relaxation should be obtained to enable the surgeon to complete the operation without straining. When I first used vinesthene I thought that gas-oxygen-vinesthene was the anæsthetic of choice for cæsarean section, but I found that sometimes I was obliged to add ether to the gas-oxygen-vinesthene. So I then used vinesthene mixture, placing it in the chloroform bottle of a Boyle's machine and administering gas-oxygen-vinesthene mixture; but I was not satisfied that this was the best technique. I have now decided that the best method is to induce the anæsthetic with gas-and-oxygen-vinesthene, using Harris's dripper. In the chloroform bottle of Boyle's machine I place about 2 oz. of vinesthene-ether mixture. Gas-oxygen-vinesthene (pure) is administered until the baby is born, when the vinesthene-ether mixture is turned on, so that the surgeon can stitch up the uterus without the intestines getting in the way. It will usually only be necessary to turn on the vinesthene-ether mixture for a brief period.

ECONOMIC ASPECT

It is sometimes thought that the cost of vinesthene is a definite objection to its use; but, when one

considers how very little of this anæsthetic is used per case, this objection cannot be upheld. I have found that 25 c.cm. will suffice for a thyroid operation taking perhaps an hour, and this only costs 4*s.* 6*d.* (retail price), which compares favourably with, for example, open ether. For a partial gastrectomy in an elderly patient I recently used 50 c.cm. of vinesthene and 1 oz. of vinesthene mixture, the cost of which cannot be considered prohibitive.

SUMMARY

In vinesthene and vinesthene mixture we have an anæsthetic of the greatest value to the general practitioner and well within his means. The use of this drug will facilitate the production and maintenance of anæsthesia and assist both practitioner and patient.

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CONGENITAL DUODENAL DIVERTICULUM

BY W. E. TANNER, M.S. Lond., F.R.C.S.
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T. H. C. BENIANS, F.R.C.S.
PATHOLOGIST TO THE PRINCE OF WALES'S AND NORTH MIDDLESEX COUNTY HOSPITALS

ONE of us (Tanner 1936) has previously recorded the excision of a large duodenal diverticulum situated in the head of the pancreas; one attack of pain has occurred since the operation and was relieved with belladonna. A barium meal and radiography during the attack of pain showed spasm of the duodenum at the site of excision; this disappeared after the injection of atropine gr. $\frac{1}{100}$. The case recorded below is another example of a duodenal diverticulum, but not connected with the head of the pancreas.

CASE-RECORD

The patient, a married woman aged 64, was admitted to the Prince of Wales's Hospital on Jan. 25, 1938, with a history of "indigestion" of twenty years' duration. The symptoms were pain and discomfort in the epigastrium and right hypochondrium, coming on half an hour to an hour after food and followed almost immediately by nausea and occasionally by vomiting, which seemed to relieve the pain. During the last year the pain had been severe, with loss of 1 st. in weight.

On examination it was obvious that she had lost weight, though her colour was good. She was tender in the right epigastrium and hypochondrium. There was no rigidity, and no mass was palpable. There were no other physical signs. A radiological examination was made by the late Dr. A. C. Dixon, who reported: "The six-hour meal shows a residue to the right of the spine with an air pocket above (fig. 1*a*). Duodenal cap of good shape and not tender. The second stage of the duodenum passes towards the right and upwards, joining the residue previously mentioned in a large diverticulum or possibly in the gall-bladder, though in the lateral view the diverticulum seems too posterior to be the gall-bladder (fig. 1*b*). Twenty-four hours later there is still a residue in the diverticulum."

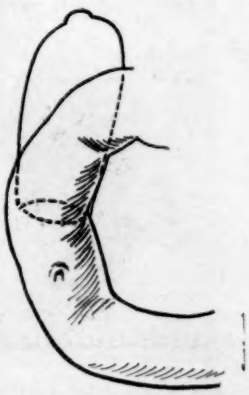

FIG. 2—Diagram of edge of duodenal diverticulum seen under the peritoneum covering the posterior abdominal wall to the right of the foramen of Winslow.

Operation.—On Jan. 27, 1938, a right paramedian laparotomy was performed under intratracheal anæsthesia administered by Dr. Douglas Belfrage. The gall-bladder was healthy. No ulcer was found in the stomach, and the first part of the duodenum was unusually long and mobile. The edge of the diverticulum (fig. 2) could be seen under the peritoneum covering the posterior abdominal wall to the right of the foramen of Winslow. The peritoneum covering the posterior sac was not thickened, and there were no signs of old or recent inflammation. The peritoneum was incised and the empty sac easily dissected out. The sac arose from the posterior aspect of the second part of the duodenum 1 in. above the level of the ampulla of Vater and extended upwards and outwards. It was detached from the duodenum, and the opening in the duodenum 1 in. in diameter was closed with two layers of continuous catgut. The incision in the posterior peritoneum was also sutured with catgut, and the abdomen was closed without drainage.

The patient has made a good recovery and is now free from symptoms and putting on weight on an ordinary diet.

Pathological report.—The diverticulum (fig. 3) measures 2 in. in length and 1 in. in width at the opening, increasing to 1½ in. at the fundus. It is thin-walled and shows some still thinner sacculated areas at the distal end.

Sections under the microscope (fig. 4) show a mucosa with the characters of the jejunum rather than duodenum. There are well-formed villi with numerous goblet cells in the epithelium of the crypts of Lieberkühn. The lamina propria

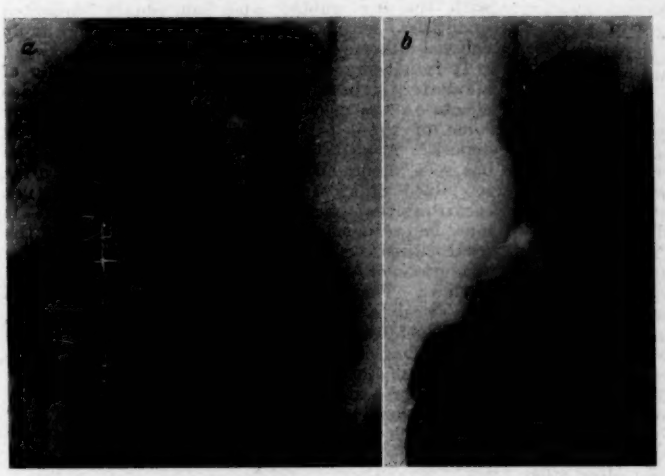

FIG. 1—Radiograms of duodenal diverticulum: (*a*) anteroposterior view, showing residue of barium meal, with an air pocket above it, to the right of the spine; (*b*) lateral view.

shows the usual character of small-bowel structure, but no nodules of lymphoid tissue are seen. The crypts rest directly on the muscularis mucosæ, the two layers of which are intact and not pierced by the ducts of Brunner's glands as in normal duodenal structure. Brunner's glands, which should lie beneath the muscularis mucosæ, are entirely lacking. Sections toward the base of the diverticulum show a true outer muscle coat separated from the muscularis mucosæ by areolar tissue; more distally the muscle coat fades out, leaving the muscularis mucosæ only, and beyond this in the saccular dilatations the wall consists of the mucosa with a thin layer of areolar tissue outside it.

FIG. 3—Duodenal diverticulum excised. Scale shows 2 in.

The diverticulum appears to be a large superficial congenital heterotopia or aberrant portion of the jejunal mucosa, which in its growth has produced a sacculus of some size, almost a viscus. No macroscopical or microscopical evidence of inflammation is seen.

COMMENTS

The wide opening and general appearance of the diverticulum suggest a portion of bowel produced by normal growth processes rather than a pressure diverticulum developing through a weakened spot in the muscularis proper of the bowel. The unusual mobility and length of the diverticulum noted at operation further support the view that it is congenital.

Aberrant portions of the mucosa are not uncommon in the upper alimentary tract, though perhaps less common in the duodenum than elsewhere. They may also be associated with congenital diverticula, although these latter are usually very small and, though perforating the muscularis mucosæ, do not pass through the proper muscular coat of the bowel.

Certain points in the embryological origin of diverticula are worth discussion. Taylor (1927) suggests that these arise in the congenital diverticula which have been noted in the ventral aspect of the fore gut of early mammalian embryos. Two diverticula which persist into adult life—namely, those forming the liver and pancreatic ducts—arise on the ventral aspect of the fore gut. They are moved in early fœtal life, partly by the rotation of the gut to the right and partly by irregular growth in the wall of the primitive gut, to their adult site on the median posterior aspect of the duodenum. Such a diverticulum as that described above could therefore have been derived from a primitive pouch on the ventral aspect of the fore gut.

FIG. 4—Microscopic section of duodenal diverticulum.

Of the constituent elements of the mucosa of the small gut the crypts of Lieberkühn are formed in the third month, Brunner's glands in the fourth, and the lymphoid tissue in the fifth. Only the first of these was present in the diverticulum. It may therefore be said to correspond to the adult form of a third-month fœtal mucosa.

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RENAL CALCULI FOLLOWING ALKALI THERAPY

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ALTHOUGH many factors related to the causation of urinary calculi are known, no exact ætiology is yet clear. It is important therefore to report any observation having a bearing on this matter.

All calculi may be grouped into primary, developing in a healthy urinary tract, and secondary, caused by pre-existing pathological lesions. Primary calculi commonly consist of calcium oxalate, uric acid, urates, or cystine. Although phosphatic calculi are usually secondary and associated with urinary obstruction and sepsis, they are much more often primary than is generally admitted. During the last few years I have observed several such cases. In most of these no cause is apparent, but in some it is only too obvious—namely, excessive consumption of alkalis in the treatment of peptic ulcer. Such therapy is not only dangerous but unnecessary, for the most important part of the medical treatment of peptic ulcer must always be small and oft-repeated meals. This fact is unfortunately little recognised by medical practitioners, who regard the alkaline mixture as the sine qua non of ulcer treatment. Even more unfortunate, however, is the popularity of such therapy with the lay public, who can obtain unlimited quantities without medical supervision. Simply colossal doses are thus often taken.

It is not my object to emphasise the danger of alkalosis; I am interested only in the more obvious effects on the urinary tract. The urine passed by some of these patients is thick with phosphatic deposit. A medical colleague informs me that he has seen numerous ulcer cases in which the urine resembled milk. In such circumstances it is not surprising that phosphatic renal calculi develop. It must be presumed that the constant irritation of the renal calices by the phosphatic deposit leads to the exudation of a little fibrin, which cements the calculus. These changes usually take place in the inferior calyx, to which most of the deposit gravitates. The bland diet with which these patients are also afflicted has some ætiological importance. It is an alkaline ash diet and thus contributes to the alkalinity of the urine; also it may be deficient in vitamin A.

The following two recent cases illustrate the condition.

CASE-RECORD

CASE 1.—A man, aged 30, was admitted to the Manchester Royal Infirmary on Feb. 25, 1939. Since Nov. 4, 1938, he had had several attacks of

severe renal pain, sometimes in the right side and sometimes in the left. These were associated with vomiting and required morphia for their relief. The attack which brought him to hospital was on the left side and started four hours before admission.

Previous history.—Up to six months ago he had been troubled with epigastric pain for four years. This was relieved with an alkaline powder. During all this time he took very large doses of this proprietary preparation, usually 3–4 oz. a day. He noticed that after this medication his urine had a white sediment in it.

On admission.—General condition good. Temperature 100·4° F., pulse-rate 90. Abdomen lax except during attacks of pain, which came on every two or three minutes and lasted only a few seconds. Bladder and kidneys not palpable. Tenderness in left costomuscular angle. No tenderness on right side. Patient was given morphia gr. ¼ and atropine gr. $\frac{1}{150}$. This relieved the pain, which did not recur.

Blood-urea: 26 mg. per 100 c.cm. Urine: pH 5·6; a trace of albumin; no sugar. Centrifuged deposit contained a few epithelial cells, a few pus cells, and triple phosphate crystals. Films showed gram-positive cocci in clumps. Cultures yielded a growth of *Staphylococcus albus* (coagulase negative).

Radiography.—A plain radiogram showed rather a pear-shaped shadow lying obliquely, with the broad end uppermost, just below the left twelfth rib at the level of the first lumbar transverse process. It measured 2 cm. in its longitudinal axis and about 1 cm. across the base. Another shadow of similar shape and with the broad end up was lying near the right ischial spine. This measured about 1·0 × 0·5 cm. An excretion urogram showed excellent function on both sides and normal caliceal outlines. The shadow previously reported could be seen to be lying in the left lower calyx. The right ureter was not sufficiently outlined to show its relationship to the shadow seen near the right ischial spine. There was no evidence of any back-pressure on the right kidney.

Cystoscopy: March 6. Low spinal anæsthesia. A no. 5 F ureteric catheter passed easily up the right side to 30 cm. and drained freely. Anteroposterior and oblique radiograms showed conclusively that the shadow near the right ischial spine was that of a stone in the right ureter.

Operation: March 13. Left nephrolithotomy through the usual oblique incision. The stone was white, homogeneous, and rather soft, and consisted of ammonium magnesium phosphate.

The patient made a good recovery. On the 22nd he had a severe attack of right renal colic, which lasted twenty-four hours. Next day a stone corresponding to that seen near the right ischial spine on the radiogram was passed. This was similar to the one removed from the left kidney and consisted of ammonium magnesium phosphate.

CASE 2.—A man, aged 55, was admitted to a nursing-home on March 2, 1939. During the preceding four days he had been having repeated attacks of severe right renal colic. He had had a duodenal ulcer in 1936 and had since been under strict medical treatment.

On admission he was in severe pain. There was tenderness all over the right side of the abdomen and in the right costomuscular angle. The urine was alkaline and showed no chemical abnormality. It contained numerous triple-phosphate crystals and a few red blood-cells. It was sterile on culture. The patient's pain was relieved by a hypodermic injection of morphia and atropine.

A plain radiogram and an excretion urogram revealed a tiny stone lying at the lower end of the right ureter.

In the next two days the patient had two further attacks of severe colic associated with strangury. His symptoms then entirely disappeared and did not recur. Further radiographic investigation showed that the shadow previously seen had disappeared.

There was no doubt that this patient suffered from a small right ureteric calculus which was passed spontaneously.

DISCUSSION

In case 1 the regular taking of an alkaline mixture, associated with an ulcer dietetic regime, was the factor responsible for the formation of primary phosphatic renal stones. Although in case 2 the stone was never found, I have little doubt that it was of the same composition. Case 1 had ceased taking alkali a short time before the calculi had started their descent from the kidney; his experience has taught him to avoid it in future. Case 2 still has occasional ulcer pain and has been advised by his physician to continue medical treatment. It is obviously important for him to drink large quantities of water daily to avoid the formation of further calculi.

When phosphatic calculi form in a healthy urinary tract, the urine excreted during the period of their formation always has a high pH. It is not claimed that all these patients have been subjected to alkaline therapy. The alkalinisation often has no discernible cause. It is most probably associated with idiosyncrasies of diet or with hereditary metabolic factors. The object of this short report is to point out that in some of these cases the consumption of large doses of alkaline powders has an intimate relation to the formation of the calculi and to warn the profession of this danger, which I am persuaded is not generally recognised.

My thanks are due to Mr. H. H. Rayner, under whose care case 1 was admitted to hospital, for permission to report the details.

Clinical Notes

PARALYSIS OF THE DELTOID

AFTER INJECTION OF SERUM AND AFTER BLOOD-TRANSFUSIONS

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PARALYSIS of the deltoid muscle is a well-known sequel to the injection of serum but is extremely rare after blood-transfusion.

1. *Paralysis after injection of serum.*—A boy, aged 14, who had been in contact with an early case of scarlet fever, was strongly positive to the Dick test. At his father's request he was given 5 c.cm. of streptococcal antitoxin (scarlet fever) into the gluteal muscles on March 22, 1936. Seven days later he had a very severe reaction: an urticarial rash extended over almost the whole body, and this was accompanied by severe pain in the joints, especially in the knees and the right shoulder. These phenomena quickly subsided, and it was then noticed that the right deltoid and the right triceps muscles were weak. The triceps returned to normal in less than a week, but the deltoid became temporarily paralysed and wasted. Massage and electricity, coupled with active movements, were instituted at once, and by July recovery was complete. He had never had serum previously and never suffered from any allergic disease.

2. *Paralysis after blood-transfusion.*—The patient was first seen in 1926, when aged 24, suffering from hæmatemesis. In 1928 and 1929 he was under treatment for melæna. Investigations, especially for peptic ulcer, produced negative results.

On Nov. 17, 1930, he had a series of hæmorrhages from the bowels, shown by persistent melæna. His

hæmoglobin fell to 30 per cent., and he was given a transfusion of 600 c.cm. of blood. Both the patient's and the donor's bloods belonged to group IV. Shortly afterwards he had pain in the right shoulder, and subsequently he developed paralysis and wasting of the right deltoid, which became permanent. The hæmorrhages continued and a gastro-jejunostomy was performed, but no ulcer was detected. At a second operation in 1937 this was undone.

On Jan. 16, 1938, he was admitted in a collapsed condition; he said he had had melæna for five weeks and had passed a large black tarry stool the day before admission. Next day he was given 300 c.cm. of blood from a group-IV donor, who, however, was not the previous donor. The serum of the donor did not agglutinate the blood of the recipient. Thirteen days later he complained of pain in the left shoulder. At no time were there any other symptoms of serum sickness—no urticaria, no albuminuria, no changes in the temperature, pulse-rate, or respiration-rate. The pain was severe but did not require morphia. It remained as a dull persistent pain, with exacerbations of severity, especially at night, for just over a fortnight, when it gradually improved. He was put up in an aeroplane splint on Feb. 1, 1938, but this made the pain worse, and the arm was kept outstretched on a pillow. On Feb. 7 the reaction of degeneration was present in the deltoid but not in any other muscles. The deltoid was slightly wasted, and despite massage and electrical stimulation it never completely recovered.

On Oct. 4, 1938, the patient was admitted again, complaining of noises in his chest and of severe precordial pain, and was collapsed. He died in a few hours, and autopsy revealed a normal alimentary tract. He had a non-syphilitic dissecting aneurysm with a double channel for the blood extending from within 1 in. of the valves down as far as the common iliac and upwards into the subclavian, with a rupture into the pleural cavity.

The recognition of the possibility of paralysis after serum or transfusion is important; otherwise the new symptom may be attributed to the disease for which the serum was given. The patient of Dyke (1918), the first case reported in England, had stiffness in the shoulder-joint on the opposite side of the body from the original cut for which antitetanic serum was given prophylactically; he was then unnecessarily given more serum. Diphtheritic paralysis might also be considered, especially the polyneuritic type.

Kraus and Beverley Chaney (1937) in reviewing the subject say that cerebral, spinal, radicular, and neural forms of paralysis may be seen after giving serum, but the fifth and sixth cervical nerves are most commonly attacked. Vogel (1935), who could find only 8 instances in the German literature from 1927 to 1935, found bilateral paralysis in 5, and mentions Katz's cases in which the trapezius muscle and the diaphragm were affected. In 1 of his own cases, a man amply treated for tetanus, very severe pain developed in the ischial nerve, but no paralysis ensued. None had had serum previously.

In the French literature there are over 70 instances, reviewed by Pallais (1936). The brachial plexus was involved in about 60, and of these 47 were on the right. The radial nerve was attacked on 4 occasions. Besides the paralysis of the plexus, neurological complications were manifested by involvement of nerve trunks and of spinal roots, polyneuritis, Landry's type of paralysis, pseudotabes, and involvement of cranial nerves. Pallais emphasises that the quantity of serum is of little import, and that accidents happened after giving purified serum.

Allen (1931) summarised 42 published reports and considered that in 23 of them the distribution was radicular, whereas only 6 were of the neuritic type: 4 musculo-spiral; 1 external popliteal; and 1 bilateral sciatic. Polyneuritic symptoms were present in 7 cases, and 6 had central involvement. It is certain that many of the cases quoted by Pallais in which the deltoid was involved were regarded by Allen as radiculitis and not as a peripheral neuritis.

Sensory changes have been noted on many occasions. An accurate estimation of the area of hyperæsthesia or of anæsthesia should show whether the circumflex nerve or the fifth and sixth of cervical roots are involved.

In my first case the question arises whether the circumflex nerve might have been stretched by an effusion into the shoulder-joint. In the second case it seems impossible to connect the paralysis with the post-mortem findings.

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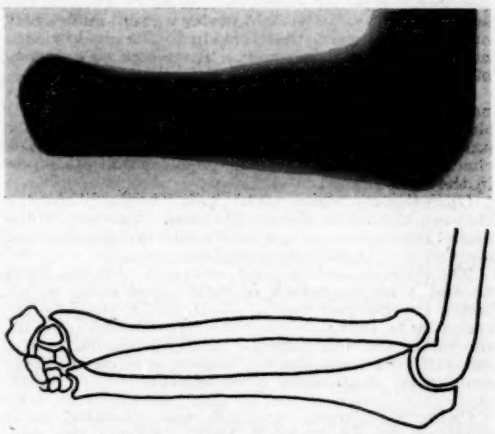
INTRA-UTERINE AMPUTATION

BY A. P. BERTWISTLE, F.R.C.S.E.

THIS case is recorded not only on account of its rarity but also as an example of how extraordinarily useful a deformed limb may be, when present from birth, compared with a limb subjected to amputation in adult life—e.g., war wounds. The condition was



Showing the left forearm after intra-uterine amputation.

seen in the left arm of a middle-aged man; there was no deformity whatever in his grandparents, parents, two brothers, or sister. He was a keen cricketer, using his deformed arm to steady the bat, played hockey with success, changed the gear lever of his car with this stump, and swam, but this was somewhat awkward because he tended to swim in circles. He used his deformed arm with consummate skill in tying his tie and lacing his shoes. In turning over the leaves of a book he would push the book with his sound hand against the stump. There was absolutely no trace of the tenderness so often found in surgical amputation. He tried an artificial limb at one time but gave it up almost at once.

Examination revealed that his left forearm was 1½ in. shorter than his right and the same amount

less in circumference at the wrist. Although the skin of the end of the stump and of the upper part of the forearm was normal, that of the lower part of the forearm was flabby, red, unhealthy, and the site of chilblains in winter. The end of the stump was supple and well covered; at the time of examination there was no suggestion of a scar, but he remembered having one in his younger days. The elbow-joint was freely mobile, hyperextension being easy; the radial head moved freely round the joint. The radiogram, kindly taken for me by Dr. H. L. Groom, reveals an almost normal first row of carpal bones but considerable changes in the second row; no trace of metacarpus is seen. The head of the radius is subluxated (see figure).

Points indicating intra-uterine amputation are: (1) the absence of the condition in any other member of the family; (2) the normal first row and not grossly abnormal second row of carpal bones differ from a congenital deformity of the usual type; and (3) the presence of a scar in early life suggests that the umbilical cord cut off the hand somewhat late, for [illegible] amputations, done under perfectly aseptic conditions, leave no scar if performed early.

REVIEWS AND NOTICES OF BOOKS

Pathology

An Introduction to Medicine and Surgery. By J. HENRY DIBLE, M.B. Glasg., F.R.C.P., professor of pathology in the University of London at the British Postgraduate Medical School; and THOMAS B. DAVIE, M.D. Lpool, M.R.C.P., professor of pathology in the University of Liverpool. London: J. and A. Churchill. 1939. Pp. 931. 36*s*.

IN this book the authors aim at presenting pathological changes as a series of processes going on in the living body. The patient is watched throughout his illness and the signs and symptoms of disease are shown in the light of pathological knowledge. Another unusual feature is the book's scheme of presentation. The convention of dividing pathology into general and systematic, or of dealing with it on a purely regional basis, has obvious advantages but the story often becomes static and disjointed. The compromise chosen by Dible and Davie is a good one and makes for better understanding. When the gross effects of an organism are the same no matter which system is involved then all conditions due to that organism are described together. But when different infecting agents cause roughly similar lesions (as in the case of pneumonia) then these are dealt with regionally.

The great difficulty in the teaching of pathology is that understanding is only possible at the end of the medical curriculum when much important knowledge has been forgotten. The authors have tried to tackle this difficulty by including much that is relevant but not strictly pathological. Thus most of the commoner bacteria and viruses are described and there are many physiological, clinical and biochemical details. The price is a bigger book, but the reward is that pathology becomes both more understandable and more interesting. Many of us were brought up on didactic textbooks in which the principles of medicine seemed to be rather dull if eternal truths. This book takes the student into confidence and shows how the body of pathological knowledge has been built up by human effort. The historical approach has been well used and is both stimulating and enlightening. It is a pity that the writing is sometimes careless and not always free from fustian. We do not believe it helps clarity to say that staphylococci "pullulate" in the depths of a boil. Most of the illustrations are admirable and it is a pleasure to see diagrams and charts which really illustrate a point.

As to the subject matter one is disarmed by the note in the preface that the book is not a repository of information but an introduction for students. One may suggest however that tumours of the lung, dealt with in one third of a page, are more important to students than hæmochromatosis which is given three times that space. We do not believe that competent bacteriologists would agree with the much repeated saying that staphylococci, *Bacillus coli and Bacillus proteus* are the important common invaders of the bladder. *B. coli* is the important common invader; the others are comparatively rare. Nor are we quite at ease with the statement, even when qualified, that complement is the lytic substance in hæmolysis or bacteriolysis. These are small points and probably inevitable in a book which covers so much ground. The sections dealing with pure pathology are the best in the book and the descriptions of inflammation and tuberculosis are particularly well done. The information on almost every subject is reliable and up to date.

Varicose Veins

By ALTON OCHSNER, M.D., F.A.C.S., director of the department of surgery, School of Medicine, Tulane University, Louisiana; and HOWARD MAHORNER, M.D., M.S., F.A.C.S., assistant professor of surgery in the university. London: Henry Kimpton. 1939. Pp. 147. 12*s*. 6*d*.

IT is now being realised that the treatment of varicose veins is not so simple after all, and that injection alone gives permanent results only in the less severe cases. The chapter on the history of the treatment of varicose veins in this excellent monograph not only illustrates some of the brutalities perpetrated in the past in the name of surgery for this condition but also brings out the extraordinary inveteracy with which varicose veins tend to recur. The authors describe the anatomy of the superficial veins of the leg adequately and the "physiology" of the perverted varicose-vein circulation, though in their subdivision into clinical types some of the more difficult types are not mentioned. Their scheme for the examination of a case is most thorough, and their three tourniquet test for deciding the appropriate treatment is greatly superior to the Perthe and Brodie (Trendelenburg) tests which have been so long in use. Treatment by a combination of ligations of the saphenous vein and injection is gone into in detail. The final chapter on varicose ulcers is not so full, and it is regrettable that excision of the ulcer and surrounding scar with full thickness skin grafting is advocated, for just as good results can be obtained without major procedures of this kind. However, there will be few of such ulcers if varicose veins are treated in the first place by the methods here advised.

Les occlusions arterielles aiguës des membres

By H. HAIMOVICI, assistant in the Faculty of Medicine, Marseilles. Paris: Masson et Cie. 1939. Pp. 124. Frs.26.

As a review of recent work this monograph is a failure, for some important work is not mentioned and references are too scanty. As an exposition of the author's views it is inadequate since little evidence is adduced in their support. This criticism applies

especially to the statements about vascular spasm and inflammation of the adventitia acting as a focus of sympathetic irritation; these the author regards as essential features of the pathology of acute arterial occlusions. Few would deny that spasm is important, but that spasm alone can cause arterial occlusion is a statement that requires proof. The causes of occlusion and the difficulties of differentiating them are clearly discussed and this part of the book contains less disputable matter than the rest. The pain of embolism at its site and moment of impaction is mistrusted by the author although not rejected. This idea dies hard in spite of the work of Lewis and Pickering. The statements as to progress are not in accord with experience in this country, where gangrene is the exception and not the rule. A variety of medical and surgical remedies are discussed but no straightforward plan of treatment is proposed. Such operations as lumbar sympathectomy are out of the question in most arterial occlusions, yet this step is advised as an adjuvant of embolectomy or arterectomy! No mention is made of heparin. This is the more regrettable since heparin seems likely to modify the whole treatment of embolism and to make operation much less chancy than it is at present. It is very expensive—but so are artificial limbs.

Diagnosis and Treatment of Diseases in the Tropics

By H. C. TOLWELL, M.D. Lond., M.R.C.P., lecturer in medicine, Uganda Medical School. London: Baillière, Tindall and Cox. 1939. Pp. 205. 2*s.* 6*d.*

Tropical Hygiene and Sanitation

By H. JORDAN, A.R.San.I., instructor of hygiene, Uganda medical service. Same publishers. 1939. Pp. 388. 5*s.*

THESE little handbooks are the third and fourth of a series written primarily for Africans in the subsidiary grades of the native medical services, and the author's aim has been to include only what experience shows such students can understand and what is sufficient to fit them to follow their profession with intelligence and interest. The first opens by considering the general principles, and symptoms and signs of disease from the broad viewpoints of physiology and pathology. After this come various sections in which all the more important tropical diseases are described systematically and with sufficient detail for the purpose in view. The second volume has been specially designed for Africans training for the sanitary certificate of the Royal Sanitary Institute. It covers the general principles of sanitation, building construction, refuse disposal, the hygiene of food-supplies, communicable diseases and the relationship of animal parasites and vectors to disease. Both books are clearly written and suitably illustrated; they are both handy and inexpensive. They should prove most useful, not only to those for whom they were written, but also to all nurses, dispensers and health orderlies throughout the tropics.

British Journal of Surgery

THE October issue (vol. 27, no. 106) contains the following articles:

THE EFFECTS OF RADIUM UPON CARCINOMA OF THE BREAST. By J. Paterson Ross (London). A comparison of the late results of radical mastectomy with those of radium implantation, followed 3–6 months later by local amputation, suggests that radical mastectomy is safest in the early stages of a growth, but that radium gives a larger number of five-year cures in the later stages. Differences in the radio-sensitivity of various histological types has been demonstrated.

DISTRIBUTION AND TREATMENT OF EXTRA-ARTICULAR FOCI IN TUBERCULOUS ARTHRITIS OF THE HIP-JOINT. By J. A. Cholmeley (Stanmore). In a review of 55 clinical histories of children, seen first at a stage when osseous foci had not infected the joints, it is shown that in only 10 per cent. did the joint remain intact. Operative excision of the foci did not improve the prognosis.

THE CAUSES OF RELAPSE FOLLOWING SYMPATHECTOMY OF THE ARM. By H. T. Simmons (Manchester) and Donal Sheehan (New York). The conclusion drawn from 67 operations are that preganglionic section is more satisfactory than ganglionectomy; that both operations are liable to relapse; and that the main cause of relapse is regeneration of vasoconstrictor fibres.

ACTINOMYCOTIC AND MYCOTIC LESIONS. *With special Reference to Madura Foot.* By B. P. Tribedi and B. N. Mukherjee (Calcutta). A total of 32 cases, most of them affections of the foot, are reviewed. In 3 recent cases, studied in detail, the difference in the tissue reaction in the two infections has been demonstrated, and also the melanotic appearance of the mycetoma.

SILENT HYPERNEPHROMATA. By Michael J. Smyth (London). Two cases are described of metastases—one in the scalp and one in the cerebellum—in which symptoms of renal disease were entirely absent. The cerebellar tumour and its primary hypernephroma were successfully excised.

RAISED INTRACRANIAL PRESSURE: HYDROCEPHALIC AND VASCULAR FACTORS. By Hugh Cairns (Oxford). Among the subjects discussed are the importance of blocking of the tentorial opening, and consequently of the subarachnoid space, by displacement downwards of the brain substance; and the bearing of acute cerebral œdema of raised cerebral venous pressure, and of inhalation of carbon dioxide.

CONGENITAL DIVERTICULUM OF THE COMMON BILE-DUCT. By Sir James Walton (London). The condition is extremely rare, but the author has seen 6 cases. Of 5 treated by anastomosis between the duodenum and the diverticulum 4 did well, and 1 died. Operative treatment is advised. The literature is reviewed, and it is concluded that the cause of the condition is a congenital weakness of the lateral wall of the duct, obstruction following as the pouch enlarges.

CHRONIC ULCERATION OF THE GREATER CURVATURE OF THE STOMACH. *With a case report.* By R. Shackman and F. H. Kemp (Sheffield). Attention is drawn to the extreme rarity of ulceration at this site. Because malignancy is to be suspected, radical operation is advised in every case, unless medical treatment results in progressive and complete healing.

THE BENIGN FIBRO-OSSEOUS TUMOURS OF THE SKULL AND FACIAL BONES. By Kenneth C. Eden (London). A relationship is traced between fibrous epulis, ossifying fibroma, localised fibrous osteoma, ivory osteoma and leontiasis ossea (diffuse osteoma). Trauma and infection are discussed as causative agents. Conservative treatment is advised.

PATHOLOGY, DIAGNOSIS AND TREATMENT OF HASHIMOTO'S DISEASE (*Struma Lymphomatosa*). By Cecil A. Joll (London). The account of the disease is based on 81 hitherto unpublished cases. The distinction from Riedel's disease is established. The disadvantages of resection and the value of radium is discussed.

FRACTURES OF THE LOWER LEG. A method of Reduction and Immobilisation. By D. Lang Stevenson (Liverpool). Extension is applied through the os calcis, with the limb flexed at the knee and the leg hanging vertically from the end of the table.

STUDIES IN PNEUMONECTOMY AND THE DEVELOPMENT OF A TWO-STAGE OPERATION FOR THE REMOVAL OF A WHOLE LUNG. By F. Ronald Edwards (Liverpool). Animal experiments have been carried out, mainly on rabbits. It has been shown that shock is produced by noxious stimuli from the parietes, the extrapleural tissues and the pulmonary blood-vessels, and that all other tissues are insensitive. The changes in the disposition of the thoracic organs and in the blood has been studied; and the indications for a two-stage operation are discussed.

There is also an appreciation of the late Prof. Archibald Young, and notes on some rare and obscure cases.

THE LANCET

LONDON : SATURDAY, NOVEMBER 25, 1939

INSOMNIA

IT is safe to assert, though difficult to prove, that since the war the average adult in Western Europe has smoked much more and slept much less than he did before. For over-smoking and sleeplessness are two of the most inseparable associates of anxiety. And just as many have had to take to a cheaper brand of tobacco, so still more have had to be content with an inferior quality as well as a smaller quantity of sleep. There is much difference of opinion as to whether lack of sleep gives rise to any significant mental and physical disturbances. KLEITMAN,[1] in his well-known experiments, did not find it so; and the few definite effects that have been reported as the result of three or four days without any sleep at all could soon be got rid of by a single relatively short period of sleep. On the other hand, those who have seen a whole population deprived of its sleep by air-raids, as was occasionally the case in Barcelona, thought that this was among the happenings which most upset the morale of the people. They came to the conclusion, confirmed by the experience of many combatants during the last war, that it was more important to ensure regular sleep than a feeling of security for people during a bombardment, though it was best to give them both. It may be inferred that the concurrence of anxiety and sleeplessness is far more disturbing than either alone and that each reinforces the bad effects of the other. Observations made in the laboratory on subjects free from anxiety are not, therefore, necessarily applicable to the population of a city liable to air-raids. When one has mistaken a motor-car toiling up the hill for an air-raid warning, one does not fall asleep again as readily or as soundly as if one had been woken by rain pattering on the roof. There are no doubt many people now who sleep more lightly than they used to, and many whose insomnia has been severe enough to drive them to seek medical advice.

The management of such patients will follow much the same lines as in calmer days: KARNOSH [2] has lately re-stated them. He urges the need for reassuring the patient, who may have come to believe that insomnia will sap his vitality and even lead to insanity. Since everyone thinks he lies awake longer than he really does, the doctor should not take it for granted that the condition is as severe as it seems, nor that special measures are called for because the patient feels his sleep is more shallow and fitful than formerly. Simple psychotherapeutic measures may lighten the patient's anxiety about the topics that crowd on his mind when he is preparing for sleep. Often the overt anxiety is a cloak for fears which can only be discovered and removed by psychiatric investigation. Muscular relaxation, an essential preliminary to sleep, may be difficult for such people, and training in this may have good results, especially when the patient can also spend up to half an hour in a bath at body temperature before going to bed. KARNOSH holds that an afternoon nap is beneficial to sleepless people, in that it teaches them to relax their muscular tension and may give them confidence; he does not believe that it shortens the sleep they get at night. He is opposed to sedatives except as an adjunct to psychological treatment, and he employs only those drugs which act speedily and intensely enough to obliterate the phase of anxious preoccupation after going to bed. He insists on the usual precautions, such as that the patient should not be told what sedative he is being given and that the dose should gradually be reduced without his knowledge. For one type of sleeplessness he advocates a drastic method: he has found that convulsions induced by Cardiazol will put an end to the insomnia of a manic patient, or of one with agitated melancholia.

For the common types of insomnia, MAURER and his colleagues [3] have tried a curious procedure. They gave large daily doses of ascorbic acid to over a hundred patients suffering from insomnia of various causation, and found that it regularly produced sound sleep with no undesirable after-effects. This normal sleep persisted in their patients for a week or more after the treatment had been discontinued. Here one may recall that an increased "need" for vitamin C has been demonstrated in fevers, thyrotoxic conditions,[4] where is disappears after thyroidectomy, and chronic alcoholism,[5] all of which are frequently accompanied by insomnia. Whether there is a similar increase in anxiety states we do not know. Meanwhile there would be no harm in trying vitamin C empirically for sleeplessness, though it remains to be seen whether it will help the man who cannot sleep by fear of the bomber overhead or the wolf at the door.

A CHARGE OF MURDER

A MEDICAL man stood his trial at Nottingham last week on a charge of murdering his wife. He came home on the evening of Sept. 1 after listening at a friend's house to the wireless news of the German invasion of Poland, and an hour or so later visited an A.R.P. post near by to draw attention to improper lights. When a manservant entered the house next morning he found a notice warning about gas and requesting that the police should be sent for. The wife was dead from carbon-monoxide poisoning and had received an intravenous anæsthetic before her death; the husband was unconscious but still living, and on his recovery after hospital treatment he had a gap in his memory for what happened after reaching home from the friend's house.

1. Kleitman, N., *Physiol. Rev.* 1929, **9**, 624.
2. Karnosh, L. J., *J. Amer. med. Ass.* Sept. 30, 1939, p. 1322.
3. Maurer, S., Wiles, H. O., Schoeffel, E. W. and Fisher, M. L., *Illinois med. J.* 1938, **74**, 971.
4. Lewis, R. A., *Bull. Johns Hopk. Hosp.* 1938, **63**, 31.
5. Alexander, L., *Arch. Neurol. Psychiat.* 1938, **40**, 58.

From evidence given at the trial we learn that as a youngster of nineteen the doctor had served seven months in France, sharing in strenuous fighting and experiencing the sight of wholesale slaughter. On one occasion he had passed into a state of fugue in which he left an ambulance that was taking him to the base, slightly wounded and probably in a disturbed mental condition, and arrived back at his unit unable to account for his actions in between. After the war he qualified in medicine and obtained a post in a west-country hospital, but within a few days he behaved curiously in giving an anæsthetic and had to give up the post. A medical witness explained that the incident was the expression of a phobia concerning anæsthetics, probably of war origin, of which the accused was still aware though, as often happens in such a case, he had no recognition of its nature and had no memory of the specific incident. He finally found his niche in industrial work, making many contributions to the literature of industrial medicine as well as showing keen interest in sociological matters, and gaining the respect and affection of his colleagues. In his own evidence he told how a few years ago he opposed A.R.P. work as tending to foster the war spirit, but finally accepted it as necessary and worked at it energetically. It had the effect, however, of stirring up the old horrors of war, and while carrying on his duties with an efficiency acknowledged by all he was constantly obsessed by terrible imaginings described by himself as, for example, "dragging youngsters out of shambles." A curious incident happened while he was awaiting trial. He was visited by the medical officer of another prison who chanced to ask whether he remembered turning on the gas. There had been an escape of gas in the prison hospital and the smell had produced in him what he described as "a disturbing sense of something very important." When he went to bed that night the smell of gas returned to him and he found himself getting very upset; the emotion increased and there suddenly came to him a recollection of his wife's body and a sensation of terror that she should suffer any mutilation. A few other disconnected pictures followed which he recognised as a real reproduction of events, but there returned no consecutive memory of the tragedy. His emotional state was such that the medical officer was sent for, and it is noteworthy that all the medical witnesses agreed that this episode was proof of the genuineness of the loss of memory, though the loss of memory was the only statement of fact by the accused which cross-examining counsel sought to shake.

The ac sed was a highly strung and over-conscientious man, with a keen sense of his obligations to his fellows. Witnesses testified to his affectionate relations with his wife, and it was clear that his war experiences, acting upon a susceptible temperament, had set in train a mental development which reached a crisis with the recognition that we were again to be plunged into war. On the day of the tragedy he had written letters referring to plans about his professional future, and everything pointed against premeditation. After he had heard the news that war seemed inevitable some rush of emotion had taken possession of his consciousness, and shutting out all other considerations had driven him to the final tragedy. There was an attempt on the part of the defence to take up a line independent of the McNaghten rule and to obtain an acquittal irrespective of its principles. It failed, however, but the expert medical witnesses, not all of whom approached the case from identical points of view, agreed that the accused was, during that altered state of mind in which the act was carried out, not capable of recognising that what he did was wrong. The jury decided that he was "guilty but insane." The verdict sounds harsh, but it will, we hope, result at no distant time in the restoration to a useful life of one whose misfortune it was to be too sensitive to the horror and beastliness of war.

PROFESSOR HEYMANS AND THE CAROTID SINUS

THE award of the Nobel Prize for medicine to Prof. CORNEILLE HEYMANS of Ghent will give great pleasure to his many friends in this country. Since the last war there has been a close collaboration, perhaps greatest among the physiologists, between medical scientists in Belgium and in Great Britain. The last twenty years have witnessed an unparalleled flowering of Belgian scientific genius, and none has done more for this than HEYMANS.

His work, summarised in several papers,[1] deals with the sensory zones at the carotid bifurcation and in the aortic arch, their part in the control of the circulation and respiration, and their involvement in drug action. The functions of the aortic or depressor nerve were cleared up long ago by CYON and LUDWIG and later by BAYLISS, ANREP, STARLING and many others. Their essential findings were that when the arterial pressure rises in the aortic arch (and perhaps also in the left heart) impulses ascend along the aortic nerve to the medullary centres, reflexly producing cardiac slowing, diminution of cardiac output, and widespread peripheral vasodilatation. Conversely, when the arterial pressure falls, the aortic receptors are less active, and this leads to increased cardiac activity and vasoconstriction. These reflexes are working all the time and thus help to keep the arterial pressure and heart-rate within normal limits. A number of researches suggested that similar responses might be produced by variations in the carotid-cerebral vascular circuit. The real significance of these observations was brought out less than twenty years ago by the experiments of HERING and KOCH in Cologne, and of HEYMANS and his colleagues in Ghent, and the beautiful histological investigations of DE CASTRO.

The carotid sinus is a dilatation of the bifurcation of the common carotid artery, mainly at the

1. Heymans, C., Le Sinus Carotidian, Paris, 1929; *Ergeb. Physiol.* 1929, **28**, 244; *New Engl. J. Med.* 1938, **219**, 147. Heymans, C., Bouckaert, J. J., and Regniers, P., Le sinus carotidien et la zone homologue cardio-aortique, Paris, 1933; *Irish J. med. Sci.* October, 1939, p. 717.

origin of the internal carotid. The adventitia here is richly supplied with sensory endings of the type found between tendon fibres; they are undoubtedly pressure receptors, responding to pressure changes inside the arteries. The sinus is connected with the central nervous system by a distinct group of nerve fibres—the carotid sinus nerve. By special techniques the carotid sinus regions, with their innervation intact, can be isolated in situ from the circulation; the sinuses can then be perfused from a pump or another animal. Such experiments show that the carotid-sinus receptors are exquisitely sensitive to minute internal pressure changes, reflexly producing (as do the aortic nerves) circulatory alterations tending to maintain the normal equilibrium. It later became clear that the pressor-receptors in the sinus and aortic zones constitute a physiological entity with a common physiological function. Their importance as "buffers" is well shown by the results of their excision; with the release of the circulatory centres from the normal regulating controls there is a great rise of arterial pressure and of heart-rate, severe cardiac irregularity (sometimes proving fatal), and an excessive excretion of adrenaline. Under suitable conditions a chronic arterial hypertension may be produced by these means, but there is no reason to suppose that it is related to any clinical form of hypertension.

Admittedly this account does not exhaust even in outline the functions of the sino-aortic nerves. A rise of arterial pressure in these vaso-sensory zones may reflexly inhibit respiration, modify abdominal visceral activities, and even induce a condition indistinguishable from normal sleep; the afferent impulses must, therefore, radiate widely in the central nervous system. Conversely a fall of sino-aortic pressure reflexly stimulates breathing. The sino-aortic zones also play a part in adjusting respiration to normal and abnormal chemical stimuli, as HEYMANS and his school first showed. When the trunk of an animal (in which all circulatory connexions between the trunk and the head are severed) is asphyxiated, afferent impulses pass up from the trunk to the respiratory centre in the perfused head reflexly stimulating breathing; the receptors concerned are not situated in the lungs but in the aortic region. Extending these researches, they found that chemo-receptors—sensory endings which are acted on by changes in the chemical composition of the blood—are also present round the carotid sinus. Anatomical considerations suggested that the presso-receptors and chemo-receptors were probably quite distinct, and experiments have now proved that the chemo-receptors are situated in the carotid body and in the more recently described aortic body. In these structures specific epithelial cells and nerve fibres are in close relation with the circulating blood; this presumably enables them to serve as sensitive detectors. The action of changes of CO_2 tension and of pH on breathing is partly due to a direct effect on the respiratory centre and partly to a reflex from the vascular chemo-receptors. The action of oxygen lack on breathing is more involved. The direct effect of anoxia on the respiratory centre is purely depressant; but the reflex effect from the chemo-receptors is purely excitatory. The net result will depend on the balance struck between these two conflicting forces. HEYMANS also showed that the carotid-aortic chemo-receptors are affected by pharmacological substances. Cyanide, nicotine, lobeline, acetylcholine and many other drugs act on these receptors producing a reflex hyperpnœa. Small doses act almost exclusively reflexly, the concentration being without action on the isolated respiratory centre. Chemo-receptors have been found also to influence the circulation reflexly.

These are only the high lights of a fruitful series of researches. Their details will be found in the writings of HEYMANS and his followers themselves. Already their work has shed light on the cardiac and other forms of dyspnœa, on syncope and on circulatory failure. There is little doubt that a still richer clinical harvest will be gathered in the future.

ANNOTATIONS

ANOTHER KIND OF BLACKOUT

ONE of the most alarming results of modern high-speed flying is transient blindness, known as blacking out or amaurosis fugax, which is brought about by sudden change of direction as in making inside or outside loops or when power diving. In the modern fast plane capable of more than 300 m.p.h. the forces exerted on the pilot during such manœuvres are enormous and may range from 5 to 10 times the value of gravity. In a loop of 300 yards radius at 300 m.p.h. the value of G. becomes 4·9, and the U.S. Army in testing its planes require a maximum stress of 9 G.[1] This is in effect a ninefold increase in weight which may suddenly be applied to the plane and pilot. Forces which meet the pilot in a straight anteroposterior or lateral direction while in flight do not have the same dramatic results as when accelerating in a curved path. Here the body may be subjected to a centrifugal force with the head inwards or less frequently outwards. A force of more than 5 G. causes a diminution or loss of vision, rapidly followed by loss of consciousness, which may last for 1–20 seconds. The severity of the symptoms is related to the size and duration of the force, and there is now little doubt that many of the changes are due to the centrifugal removal of blood from the brain. Nevertheless, this does not account for everything, and there are wide variations in the individual pilot's ability to withstand the stress. Rook and Dawson,[2] working in this country on hypotensive pilots, concluded that this ability to withstand stress depends on the power of the cardiovascular system to adjust itself to the abnormal forces encountered. Animal experiments in Germany using centrifugal force with the head inwards have demonstrated exsanguination of the cerebrum and even of the heart with dilatation of the abdominal vessels; the pressure

1. Phillips, R. B., and Sheard, C., *Proc. Mayo. Clin.* Sept. 27, 1939, p. 612.

2. Rook, A. F., and Dawson, D. J., *Lancet*, 1938, 2, 1503.

in the carotid artery falls to zero. When centrifugal force acts with the head outwards great pain is felt in the eyes and head, conjunctival hæmorrhages occur, and long sustained mental confusion may result from cerebral engorgement.

Whether the blindness is due to retinal ischæmia or to vascular alterations in the visual pathway has not yet been determined, but Livingston [3] has brought forward evidence against the theory that ischæmia results from occlusion of the retinal arteries by the positive intraocular pressure, since this is unchanged by the centrifugal action; he suggests that the maximal alterations take place in the neighbourhood of the external geniculate bodies and in the area striata.

Many devices have been used to counter the effects of centrifugal force upon the pilots. Apparatus designed to transfer the centrifugal force in a vertical column of water into a distensible belt around the abdomen, tight clothing, sliding seats, alterations in posture, to make the change in force lateral or antero-posterior, and forceful yelling when diving or looping are all effective when the stress is small. It is significant that all the more effective procedures have in common a tendency to prevent flooding of the visceral vessels at the expense of the cranial blood-supply.

CHEMOTHERAPY OF INFLUENZA

THE sulphanilamide group of drugs has so far proved effective in only two virus diseases, lymphogranuloma and trachoma. In both conditions there is some doubt as to whether the infecting agent may be classed as a true virus. They have met with little success in experimental influenza infections, although Oakley [4] demonstrated a slight effect on mouse infections with one of the sulphone compounds, and Levaditi described a slight effect with a closely related substance. Climenko, Crossley and Northey [5] have now published mouse experiments with the Puerto-Rico strain of human influenza virus which show a very much better therapeutic result with the sodium salt of a compound $(NH_2C_6H_4SO_2)_2NH$. This compound is described as disulphanilamide, but as the name has been given to another compound of different constitution by Rosenthal the term may lead to some confusion. These workers claim that the mortality of mice is reduced from 98 to 2 per cent. by subcutaneous treatment with this salt, and oral treatment is almost as effective. The salt has a very low toxicity, lower than that of sulphanilamide itself; 1·5 g. per kg. could be given to mice daily for 16 days without any sign of toxicity. This work, if it is confirmed, raises the possibility of influencing virus diseases with these drugs, and it seems that very soluble derivatives may be required. As a number of these are now available, we may hope that the work may soon be extended, and in view of the great differences between strains of influenza virus it is important that it should be repeated with other strains.

Experiments with M. & B. 693 in mouse infections with *Hæmophilus influenzæ* have been described by Pittman.[6] Interest in this infection was aroused by the favourable response of a baby suffering from pneumonia, from whom this organism was recovered; within 24 hours of the exhibition of the drug the child showed definite improvement, followed by a rapid recovery. Mice were infected intraperitoneally with approximately 100 minimum fatal doses of culture suspended in mucin. The drug was given half an hour before the infection and at various intervals afterwards, and complete protection was obtained with a dose of 8 mg. of the drug. Smaller doses had a slight effect but did not give complete protection. The drug did not prevent invasion of the blood-stream, but after 3 hours the treated mice showed fewer organisms in the blood than the controls. This is analogous to the effects already observed in other bacterial infections.

3. Livingston, P. C., *Brit. J. Surg.* 1939, **26**, 749.
4. Oakley, C. L., *Brit. med. J.* 1938, **1**, 895.
5. *J. Pharmacol.* 1939, **67**, 201.
6. Pittman, M., *Publ. Hlth Rep., Wash.* 1939, **54**, 176.

DRINK MORE MILK

IN the last of its reports [1] on the nutritive values of raw and pasteurised milk the Milk Nutrition Committee gives a full account of its large-scale trial of the effects of giving various milk supplements to children at school (an interim report had previously been issued) and summarises the results of its earlier experimental work on animals. It withdraws from the field with the broad conclusions that the generally accepted value of milk to growing children has been abundantly confirmed by its work, and that apart from infants who might be fed exclusively, or almost exclusively, on cow's milk there are no nutritional differences of any practical importance between the raw and pasteurised varieties. The second deduction is based on both the animal and human feeding experiments.

In the human experiments some 8000 school-children from five different areas participated, being initially divided at random into four groups to receive, over one year, a daily ration at school of (1) biscuits, (2) a third of a pint of pasteurised milk, (3) two-thirds of a pint of pasteurised milk, and (4) two-thirds of a pint of raw milk. All children were periodically examined, measurements being made of their physique as well as assessments of their state of nutrition, intellectual ability, and of such features as their posture and complexion. These latter features were found to give quite indeterminate results and no differences which could be interpreted in favour of one feeding group over another. On the other hand, the general trend of the detailed figures, set out in thirty tables, shows that the children on the milk supplements increased in height, weight, chest-dimension and strength of pull to a greater extent than those given biscuits, and also improved more distinctly both in their clinical state of nutrition and in the teachers' assessment of their ability. In addition, those on the larger milk supplement showed usually an improvement over and above those on the smaller, while there was no consistent difference between those on equal supplements of raw and pasteurised milk. The actual advantages of the milk drinkers over the biscuit eaters, though significant and uniform, were, it may be noted, quite small—for instance, less than 1/10 in. in height and ¼–1 lb. in weight over the entire year. These differences are less than those observed by some previous workers and may be a reflection of a higher standard of living in the home today, leaving less scope for the influence of supplements.

Such an experiment as is reported here suffers from an inevitable lack of control over the home diet. The child given milk at school may for that reason not be given it at home, whereas the one given biscuits at school may be more likely to get milk at home. This difficulty carries less weight in the comparison of the different types of milk, and from the standpoint of public health the conclusion that supplements of raw and pasteurised milk give effectively equivalent results is clearly of much importance and more impressive

1. Milk and Nutrition, Part 4. The effects of dietary supplements of pasteurised and raw milk on the growth and health of school-children (final report); summary of all researches carried out by the committee and practical conclusions, 1939. National Institute for Research in Dairying, Shinfield, Reading. Pp. 70. 2s.

than if it were based only on the animal feeding experiments. Unfortunately it was found impossible to obtain sickness data for the different feeding groups. Such figures would have been of much value in view of the claims that are being made as to the reduction of sickness absenteeism in those factory workers who take their daily milk.

TUBERCULOSIS IN DENMARK

THE statistics of tuberculosis in Denmark, where the disease has been notifiable since 1905, have been subjected to a close scrutiny and analysis by Lindhardt.[1] Confining her attention to the decade 1925–34 her material related to 39,379 notifications of new cases and 20,173 registered deaths. Relating these figures to the population of the country gives an annual case-rate of 11·1 per 10,000 persons living and a death-rate of 5·7, pulmonary tuberculosis accounting for 5 per cent. of deaths from all causes. Division of the period into the two quinquennia reveals a distinct improvement in both incidence and mortality, the latter being 19 per cent. less in 1930–34 than in 1925–29 and the former 15 per cent. less. Contrary to the experience of this country, the decline in mortality appears to have been fully shared by adolescent and young adult females. The scope for further improvement at these ages is, however, shown by the fact that at ages 20–24 the total death-rate of females from all causes was 2·6 per 1000; from pulmonary tuberculosis it was 1·2, or nearly half the total mortality. Denmark conforms to rule in having higher rates in its towns than in the country, but its case- and death-rates are both higher in females than in males and at nearly every stage of life.

The seasonal curve of notification shows its maximum from April to June and its minimum in December, the peak for females being especially distinct. The death-peak falls rather earlier, from March to April, and its minimum in October. The young and old appear to be most susceptible to such seasonal influences, but females of every age reveal a maximum in May. As in this country, those employed in farming enjoy relatively low rates. Attention is drawn to high morbidity- and mortality-rates (especially the former) amongst newly qualified physicians and medical students. Here early recognition of cases perhaps plays a part.

PERIPHERAL INJURY TO THE FACIAL NERVE

RECOVERY from a peripheral somatic motor nerve injury is often accompanied by associated movements of the muscles supplied by the nerve. In addition, during the very early stages of recovery, the paralysed muscles take on an added plumpness, and the patient also becomes aware of local sensations difficult to describe but resembling muscular contractions, although these are not visible. Hunt[2] believed that the function of motility in skeletal muscle is resolvable into two components—the movement proper, and the more passive form of contractility underlying postural tone. The histology of striate muscle appears to support this view, for two distinct types of contractile substance are present, also two kinds of nerve-ending and nerve-fibre (medullated and non-medullated).

While Ballance and Duel[3] were working on their method of grafting a divided facial nerve, they became interested in the clinical phenomenon of associated movements during and after recovery of function of the nerve. Much experimental work was performed on monkeys, and these animals also develop facial myoclonus, sometimes severe. Ballance[4] removed the motor cortex of the facial area from several animals and declared that there was a change in the pyramidal cells on the side opposite to the divided nerve, inferring that the cause of the myoclonus is central. However, Duel extirpated similar areas (even the whole hemisphere), allowing the animals to recover, and found that the myoclonus persisted. In two cases he removed both cerebral hemispheres; neither animal recovered completely from this operation and the facial tic was difficult to elicit, but the associated movements continued on the side of the peripheral nerve lesion. He could not find any definite histological change in the motor cortex. Again, in two patients with a severe tic, he performed a second operation and graft, but with recovery of the nerve the tic reappeared. The work was carried on with the assistance of Howe and Tower[5] and more attention was paid to the peripheral portion of the nervous pathway. Two main branches of the nerve supplying respectively the eyelids and lips were isolated and divided. The proximal end of each was sutured to the peripheral end of the other. Recovery of innervation was not accompanied by associated movements or myoclonus. When the proximal end of the branch to the eyelids was united to the peripheral end of the branch to the lips an associated movement of the latter occurred when the normal eye was blinked. The eyelid muscles also partly recovered their function, taking considerably longer to do so. It seemed more reasonable to suppose that the paralysed muscles were innervated by new twigs from unparalysed nerve trunks than that neurofibrils had grown from the cut nerve stump across the intervening tissue spaces, a distance often of 3 to 4 c.cm. However, blinking of either eye was then accompanied by contraction of the lip muscles. Stimulation of the eyelid areas of the motor cortex on either side provoked a similar movement, and the thresholds for these cortically excited performances were equal on the two sides, excluding central hyperexcitability as a factor. In another series of experiments the trunk of the facial nerve on one side was injured and allowed to recover. The animals then all showed obvious associated movements and myoclonus. At this stage, several peripheral branches were isolated on each side and a typical trunk on the abnormal side was divided together with its counterpart on the other. Mild faradic stimulation of the peripheral ends of these trunks was found to innervate a similar localised area on each side. Stimulation of the proximal ends of the trunks, however, revealed obvious differences. No movement whatever was produced on the normal side, whereas on the other there were widespread contractions of all the muscles supplied by the facial nerve. Moreover, they persisted unchanged even if the nerve was divided at the internal auditory meatus. These two sets of experiments indicate that individual axons split at the point of trauma and that the growing neurofibrils enter a number of different peripheral branches. The hypothesis was finally proved by histological examination of the neuroma at the site of the injury to the nerve trunk. Thus widely separated muscles are supplied by branching of a single regenerated axon and an irrevocable functional union takes place between muscles which do not normally contract simultaneously.

1. Lindhardt, H., The Statistics of Pulmonary Tuberculosis in Denmark, 1925–34. Translated from the Danish by W. E. Calvert. Ejnar Muntsgaard, Copenhagen. 1939. Pp. 179.
2. Hunt, J. R. *Arch. Neurol. Psychiat.* 1923, **10**, 37.
3. Ballance, C., and Duel, A. B., *Arch. Otolaryng.* 1932, **15**, 1.
4. Ballance, C., Pyramidal cells of the facial area of the motor cortex. 1934. D. C. Thompson, Dundee.
5. Howe, H. A., Tower, S. S., and Duel, A. B., *Arch. Neurol. Psychiat.* 1937, **38**, 1190.

Fowler [6] discusses this work and some of the clinical applications. First, as a direct corollary, it follows that if tic-like associated movements occur after paralysis it is certain that the lesion was peripheral. He cites an interesting case where an otherwise probable diagnosis of intracerebral suppuration was ruled out by bearing this fact in mind. Secondly, the less the initial injury the fewer the interrupted axons which will subsequently sprout neurofibrils. Therefore, he believes that facial paralysis should be relieved at the earliest possible moment, and, in an injury, as much nerve as possible should be preserved. Thus excision of a portion of the nerve, as counselled by Duel, is probably not advisable if it is incompletely severed, and every effort should be made to spare the remainder because it may be relatively normal. A neuroma at the site of an old lesion should be treated conservatively and pared away from the nerve in an effort to save possible underlying normal fibres. Thirdly, once the movements appear they progress to a certain point, usually synchronous with maximum functional recovery of the nerve, and are then absolutely permanent. The two cases cited where Duel excised and regrafted the injured area of nerve failed because he had not then realised the cause of the phenomenon. It is inconceivable that a second set of neurofibrils would redistribute themselves any better than the first. Fourthly, in a Bell's palsy, if the faradic response disappears, and especially if reaction of degeneration is present, decompression should be performed, for again the fewer axons which degenerate the fewer new axons there will be to break up and cause multiple innervation of the face. This is particularly applicable where the palsy is of the recurrent type. Lastly, afflicted patients should reduce voluntary movements of facial expression to a minimum in order to prevent the secondary involuntary twitching. Practice before a mirror and the cultivation of severe self-control are necessary. Self-consciousness of the deformity is a strong predisposing cause of these movements, and if some disfigurement persists after a nerve graft or decompression a plastic operation to straighten the face should be performed.

CALCULI AND ALKALI

STAGNATION and infection are almost the only certain known factors in the formation of renal calculi; experience in hospitals where patients with bone diseases are obliged to remain prone for many months confirms the high importance of stagnation. That renal calculi occur when there is a prolonged and massive excretion of calcium salts such as in hyperparathyroidism is also well known, although this disease is so rare that as an ætiological factor it may be neglected. Elsewhere in this issue, Mr. Thomas Moore refers to another possible cause. He reports two cases of renal calculi occurring in patients who had had prolonged alkali treatment for peptic ulcer. In the first a staphylococcal urinary infection was present, but in the second case no element of infection was noted. Mr. Moore points out that prolonged administration of alkali produces a highly phosphatic urine and consequently tends to produce calculi of the same type. A recent paper by Kretschmer and Brown [7] on the same subject reviews 2210 cases; the difference in the incidence of renal calculi between those who received alkalis and those who did not was found to be so low that they conclude that alkali administration is of no significance in stone formation. Similarly, when examining 1260 cases in which renal and vesical stones had been present, they found a very low incidence of prolonged alkali therapy in the histories. The discussion of this paper by the section of urology of the American Medical Association appears to show that urologists as a whole did not consider alkalis played an important part in the production of stone. Statistics en masse may, however, obscure individual factors of importance. Physicians treating large numbers of cases for peptic ulcer have often remarked on the occasional occurrence of stones at a later date in the patient's history. Although the administration of alkalis cannot account for more than a very small proportion of all the cases of renal calculi, yet if a patient with other factors predisposing to the formation of stone has the misfortune to develop a peptic ulcer, the risk of alkali administration should not be forgotten. At the present moment alternative antacids, such as aluminium hydroxide, are available; that these do not create phosphaturia should not be forgotten when the treatment of peptic ulcer over a long period is being planned.

6. Fowler, E. P., *J. Amer. med. Ass.* 1939, **113**, 1003.
7. Kretschmer, H. L. and Brown, R. C. *J. Amer. Med. Ass.* Oct. 14, 1939, p. 1471.

MALARIA AND BLOOD-TRANSFUSION

THE risks of transmitting syphilis by transfusion of blood are well known, and the fatal case recorded by Nabarro and Edward [1] has brought out the real danger of conveying malaria in this way, even when clinical signs and symptoms have long disappeared. Hutton and Shute [2] have now discussed these risks and the precautions required in greater detail, based on their long experience at the Ministry of Health malaria therapy centre at the Horton L.C.C. Mental Hospital. They point out that the parasite apparently disappears from the blood after appropriate treatment or when a certain degree of natural immunity has been acquired in untreated cases, and therefore that for purposes of blood-transfusion a negative report of malaria parasites should not be accepted as complete evidence that the donor is free from malaria. They further show that the parasite may survive for days or even weeks in blood stored at low temperatures—i.e., about 4° C.—as is the case in the blood banks kept for transfusion in emergencies. The survival periods of the three common species of malarial parasites vary. Thus patients infected with benign tertian malaria may continue to maintain sufficient parasites in their blood to induce malaria up to 18 months after the primary infection; for malignant tertian the period may be at least 12 months; while quartan parasites may persist for many years. Quartan malaria is, however, the rarest of the three, although it was the infecting agent in the case recorded by Nabarro and Edward.

From the point of view of practical prophylaxis Hutton and Shute suggest that the problem differs somewhat in selecting donors drawn from the civil population or from the fighting services. They suggest that donors from the civil population should be asked whether they have ever lived for long or short periods in the tropics, sub-tropics or Eastern Europe, and if they say that they have they should not be accepted if other donors are available. A very high proportion of regular soldiers, however, have served in malarial areas and it may not always be possible to obtain a service donor who has never been in the tropics. The risk of transmitting malaria from such donors can be minimised by administering ten grains of quinine regularly once a week, but even a daily dose may be insufficient to sterilise the blood of a malignant tertian carrier. Should infection with malaria accidentally take place in this way serious consequences may be averted by prompt and effective

1. *Lancet*, 1939, **2**, 556.
2. *J. trop. Med. (Hyg.)* Oct. 16, 1939, p. 309.

treatment. The routine methods of terminating an attack in use at the Horton Centre are: (1) for ovale tertian, quin. bihydrochlor. gr. 10 daily for three days; (2) for benign tertian, quin. bihydrochlor. gr. 5 daily for fifteen days; (3) for quartan, quin. bihydrochlor. gr. 10 daily for seven days; and (4) for malignant tertian, Atebrin 0·3 g. daily for seven days, and then two doses of Plasmoquine 0·02 g. with a week between them. Although atebrin is innocuous in therapeutic doses, large doses have been known to produce toxic effects. Plasmoquine is a highly toxic drug and should never be given in larger doses than 0·02 g. daily and then only for short periods; its use will seldom be necessary.

As regard diagnosis in this country, expert assistance in the examination of blood-films for parasites is supplied by the Ministry of Health,* and finally, it should be remembered that malaria, however acquired, is a notifiable disease.

THE FATE OF THE TABLET

SINCE it became known that monographs on compressed tablets might be included in the British Pharmacopœia some useful work on standards has been done, the practical results of which will doubtless be helpful to the Pharmacopœia Commission. The size and weight of the tablet need to be defined so as to ensure a uniformity of appearance and thus prevent the patient's suspicion when his second box differs from the first. It is, however, still more important that there should be official standards requiring that the tablets when swallowed shall disintegrate in the stomach or intestine rapidly. Berry,[1] in a paper read at this year's meeting of the British Pharmaceutical Conference, states that some tablets, either because of high compression or the method of preparing the ingredients, may actually pass through the alimentary tract unchanged. Brown,[2] on the same occasion, pointed out that tests for disintegration vary considerably in their results and that a standard test which would be universally reproducible was needed. He said that undue significance should not be given to differences in rate of disintegration, since a tablet which disintegrates anywhere within a certain time limit can be considered satisfactory. Berry's experiments showed that most disintegration tests for tablets possessed the disadvantage of not having a definite end-point. In one method tablets are suspended on a wire loop just below the surface of a column of water at 18° to 20° C. The end-point occurs when all the tablet particles have fallen. Such a method works well with certain tablets, particularly those which contain large insoluble crystals, but it does not work with such tablets as calcium lactate which form a sticky mass. The Swiss Pharmacopœia specified a method of gently shaking a tablet with water at 37° C. and noting the times of disintegration. This again works well with tablets which disintegrate evenly but the end-point is sometimes very indefinite. The method suggested by Berry depends upon a weighted wire cutting through the tablet after the tablet has been softened in water; the end-point is the fall of the weight and is consequently quite definite. Brown uses a compression balance, in which the weight necessary to crush the tablet immersed in different media is measured. Either of these methods may commend themselves to the Pharmacopœia Commission in their task of making sure that compressed tablets do not come out of the patient's body in the form in which they go in.

*Such films should be addressed to the Assistant Malaria Officer, Ministry of Health Malaria Labaratory, Horton Hospital, Epsom, Surrey.

1. Berry, H., *Quart. J. Pharm.* July 1939, p. 501.
2. Brown, C. L. M., *Ibid*, p. 489.

NORMAL FLORA OF THE NASOPHARYNX

THE authors of a report[1] just issued by the Ministry of Health have studied over a period of seven years the month-to-month variations in the normal nasopharyngeal and nasal flora of a group of over 100 of the personnel of the London School of Hygiene. The findings were checked by less frequent observations on another group of adults, boys at two schools and infants at an orphan home. Attention was paid primarily to the incidence of pneumococci, hæmolytic streptococci, meningococci and *Hæmophilus influenzæ*. The organisms carried by any one individual varied from one swabbing to another, but the percentage incidence of any particular organism remained fairly steady for any one environmental group. No changes in bacterial flora were noted in advance of an epidemic of influenza. Hæmolytic streptococci were found in 0–20 per cent. of swabbings during the seven-year period. At times of epidemic prevalence of tonsillitis in schools the carrier-rate rose in the normal contacts. Evidence obtained supported F. Griffith's view that at such times one particular epidemic strain of streptococcus spreads rapidly through the community. Pneumococci had an incidence of 20–60 per cent. For the first time the incidence of the different serological types has been studied on an adequate sample of normal people. The various types were prevalent to a differing extent in the different communities studied; thus types IV and XII were frequently isolated at one school, seldom elsewhere. An individual might yield one type on one occasion and another type later; there was apparently plenty of give and take of pneumococci among the people studied. There was no general increase in incidence of pneumococci at a time of prevalence of pneumonia. No one type ever showed signs of spreading rapidly and rising to a position of dominance. Meningococci occurred in 6–26 per cent. of swabbings; over half of those taken at the School of Hygiene showed a carrier-rate of more than 15 per cent. During the last war a carrier-rate of 20 per cent. was considered a danger-signal. The figures recorded in this report differ from the war-time data but are in harmony with other figures recorded recently. They are particularly important now when army medical officers are anxious lest the history of cerebrospinal fever in the last war may be repeated. *H. influenzæ* showed a steady carrier-rate in the nasopharynx of 60–65 per cent. The studies of Dr. Straker and her colleagues on the incidence in the nose and nasopharynx are instructive in relation to those of Drs. Rosher and Cole on the occurrence of *H. influenzæ* in the trachea. They suggest that there is "a winter spread" of the organism to the nose and trachea "from a permanent centre of colonisation in the nasopharynx, followed by a summer recession." Findings in relation to colds suggest that certain virus infections may act like wintry conditions in favouring extension of *H. influenzæ* beyond its normal habitat.

1. A study of the nasopharyngeal bacterial flora of different groups of germs observed in London and South-East England during the years 1930 to 1937. By Edith Straker, A. Bradford Hill, and R. Lovell. With some observations on the occurrence of *H. influenzæ* in the trachea by A. B. Rosher and W. T. Cole. H.M. Stationery Office. 1939. 2s.

On Nov. 30, at 3 P.M. Sir WALTER LANGDON-BROWN will deliver the Thomas Vicary lecture to the Royal College of Surgeons of England. His subject will be the Apposable Thumb.

Dr. E. D. ADRIAN, F.R.S., professor of physiology in the University of Cambridge, has been appointed a member of the Medical Research Council in the vacancy caused by the death of Prof. John Mellanby.

SPECIAL ARTICLES

PREVENTION OF WAR PSYCHO-NEUROSIS IN SOLDIERS

By E. N. Snowden, M.B. Lond.

PSYCHOLOGIST TO THE HOSPITAL FOR NERVOUS DISEASES, MAIDA VALE; LATE CHIEF ASSISTANT IN THE DEPARTMENT OF PSYCHOLOGICAL MEDICINE AT ST. BARTHOLOMEW'S HOSPITAL, LONDON

The first duty of medicine is to prevent disease. Therefore, since the psychoneuroses caused many casualties in the last war, and since there is no reason to assume that the conditions will be any less testing in the present war, it is worth while to inquire if this loss of fighting power can be prevented. To do this, the conditions producing neuroses in peace-time must first be considered.

THE PEACE-TIME CASE

Speaking broadly, a psychoneurosis arises because of a failure of adaptation of the individual to circumstances, either because of some inherent or acquired weakness or of some abnormality in the surroundings, or of a combination of both. Thus it can be assumed that everyone is capable of developing a psychoneurosis, for conditions can be visualised which will be beyond the powers of adaptation of even the best balanced man. Inherent weakness is well shown in the type of temperament which avoids the more robust side of life both in games and in other things. This class does not necessarily include the sensitive imaginative type, which is more often found to be brave and enduring beyond the average.

Among the acquired weaknesses are the bulk of those types which tend to develop a psychoneurosis. They include (1) those who have been terrified in childhood by noisy quarrels between parents or by drunkenness in either parent, and by humiliation and a feeling of inferiority caused by their identification with such a home; (2) those who have developed a phobia as a result of the emotion induced by some single overpowering experience; and (3) those with the type of inherent weakness mentioned above—namely, those who have had a completely sheltered life due to faulty upbringing by indulgent parents. This brief survey does not include all the types but is intended to indicate the direction in which a lack of resistance to ordinary difficulties in life may be found.

The class of person liable to develop a psychoneurosis includes those with ordinary resistance who are overcome by an extraordinary circumstance which causes profound psychic trauma, in some as the result of an accident producing a sudden shock, in others from a business or domestic upheaval involving a more prolonged strain. These types are sufficiently obvious not to need any further description.

THE WAR-TIME CASE

All these classes of people are being drafted into the Army. A few of them will be fortified and set up by military training and the companionship of normal men, but most of them must sooner or later become aware of the fragility of their mental armour in the circumstances in which this war will probably be waged.

During the last war many men developed war psychoneurosis, and their number increased as the war went on. This increase was not due, as some have held, to the recognition of the condition by the authorities but to the number of men engaged, the conditions in which fighting was taking place, and the fact that the persistence of the voluntary system for a long period had resulted in the weaker types avoiding service and having a long wait at home, with all the horrors of war before their eyes, before enlistment became obligatory. Apart however from this, no type was immune from the development of psychoneurosis, and it seemed ultimately always to depend on outside forces—the experiences of the individual. Some were fortunate and had an easy time, whereas those who showed symptoms due to the strain were either constantly engaged in the more dangerous tasks or had been exposed to such accidents as being blown up or buried. The man with a phobia which conflicted with his work as a soldier was peculiarly vulnerable, and many of these were unconcerned about the risks of death or wounds but broke down under the strain of the sight of blood, the risk of suffocation or of being shut in a dug-out, or the filth of trench latrines.

PREVENTION OF PSYCHONEUROSIS

Can the knowledge and experience of psychological medicine gained during the last twenty-five years be used to reduce the incidence of the psychoneuroses during the present war? Speaking generally, it must be accepted that the more that is known about an illness, the easier it is to prevent or cure it, so long as the knowledge is made available to those who have to deal with the disease. In the case of the soldier these include the staffs of casualty clearing stations and base hospitals, but in the prevention of the psychoneuroses it is especially necessary for the regimental medical officers to have sufficient knowledge of the subject to be able to detect and treat the men before their symptoms become too severe to be controlled.

Experience has taught psychiatrists that early detection and treatment are essential if the illness is to be prevented or cured in a reasonable time. This is most evident to those whose work lies among children of school age and to those who treat cases of psychoneurosis arising from serious accidents to workmen. It must be true also of the soldier exposed to the strain of warfare. In such early cases the treatment does not include any extensive psychological treatment nor any of those psychotherapeutic measures which may be necessary in peace-time cases of long standing; in fact, the soldier need not realise that he is being treated for anything more than the symptoms of emotional strain. All that is required in most cases, if they are taken early enough, is that the men should be given a feeling that they are being understood and treated sympathetically, and that they should be supplied with drugs to slow down the emotional reactions. In cases of greater severity and in the last resort it may be necessary to consider some change of conditions, besides some simple psychotherapy, to retain the usefulness of the soldier in some other sphere and to prevent his becoming an expensive casualty; but this would have to be undertaken further down the line by medical officers specially trained for the purpose.

Some such scheme as the following is therefore suggested. The principle always to be followed is that no man with psychoneurosis is evacuated to England until he has passed through the whole system

and has been finally certified by a competent authority as being of no further value as a soldier in the existing conditions.

SCHEME OF TREATMENT

The training of regimental medical officers need only be very simple. The medical officer does not need to practise any psychotherapy; in fact, he has no time for anything of the sort. All he has to learn is to recognise an incipient psychoneurosis when he sees it, and this could be taught in a short course of lectures.

The cases are likely to be of three types: (1) conversion neurosis, involving a loss of function in some part of the body; (2) anxiety neurosis, involving trembling, palpitation, breathlessness, sleeplessness, flush, sweating, and increased deep reflexes, and (3) depression and helplessness. The recognition of these types is easy, and, except for depression, they cannot readily be simulated. The regimental medical officer should be taught to look for these cases in his ordinary parades of sick, and he must treat them as frankly and as naturally as he would any other minor casualty. The soldier must be told that he is suffering from the strain, and he should be asked if there is any part of his duties that he finds particularly difficult or disturbing, so that this can be modified if it can be done without hardship to his fellows. If he has a loss of function of any part of the body, he should understand that there is no disease to the part involved. The action of the sedative that is given to the patient can be explained. The condition should be treated seriously but as a minor casualty, and, unless the man is completely disabled, there should be no suggestion that the psychoneurosis is a reason for evacuation to the base. Every man who can be kept at his duty by these methods is of double value; he is one more active soldier and one fewer casualty to be dealt with behind the line.

It is obvious that this work becomes more difficult if there are many casualties of a surgical type coming through the regimental medical officer's hands, but it is often possible, when a man shows acute signs of strain, to give him a few hours' sleep by an injection of hyoscine hydrobromide gr. $\frac{1}{100}$ and to send him back to his duties refreshed. Morphia must never be used for these cases.

The regimental medical officer is therefore the first line of defence of the whole system. The casualty clearing station is the second line. Here the work of the regimental medical officer can be elaborated, and, unless the accommodation for patients is overstrained, a few days' rest can be given instead of a few hours, with prolonged narcosis if necessary. At the casualty clearing station no psychotherapy should be attempted, beyond treating the patient sympathetically and understandingly and preventing his symptoms from causing him alarm, so as to avoid secondary anxieties.

The base hospital is the third line of the system. Here definite psychotherapy can be attempted, unless the strain on accommodation becomes very great. The patients should be segregated as far as possible, although this is not essential, and they should have individual attention to discover the particular part of the life in the fighting line which each patient found most difficult to withstand. These difficulties can be compared with the patient's reaction to the difficulties in his peace-time life, and by discussion, explanation, and re-education his courage can be restored. Sedatives of various degrees of potency can be given to reduce the emotional reaction and to ensure sleep. Finally, the patients must be well fed. In most cases the digestive processes are diminished, and an infrequent heavy meal is less well tolerated than frequent light meals, but the patients must not be allowed to go hungry.

REHABILITATION

The last line of the system is the rehabilitation camp, and here there should be an atmosphere of activity. There should be opportunities for games exercises, and physical labour, leading to military exercises, so that the military attitude of mind can be regained. No patients in this camp should be idle as soon as he is considered to be fit for any kind of activity, so that, at the end of his course, he is doing a full day's hard work, and, on rejoining his unit, is fit to take his place with other men without finding it a strain.

There is much to be said in favour of these rehabilitation centres and their extensive use for convalescents other than psychoneurotics. They are advocated here because of the fact, established in the last war, that a man who is not completely fit cannot be expected to stand up to the emotional strain of warfare. This coincides with the experience of the peace-time case—that the symptoms of anxiety are most likely to become evident when a man returns to face a strain after a debilitating illness. During the last war the greatest number of cases of psychoneurosis, in soldiers of the best type, were the result of the men being hurried back to the front line before they were fit. Patients with a minor illness, such as influenza and laryngitis, should be given a course of rehabilitation before being returned to duty.

Some such scheme as this should be effective in preventing to a very great extent the development of the psychoneuroses in the fighting man.

CONVERSION NEUROSIS

A final word must be said on conversion neurosis, with some loss of function as its chief symptom. In the last war there were very many of these cases, and the reason of their predominance is simple. The soldier who was finding the strain too great for him had no redress, nor had the medical officers any power to help him. If he reported sick he was given a No. 9 pill and returned to duty. So long as he could stand up he must fight, and he tried his best until the strain became unendurable. In this state of mind he was ripe for the development of a functional symptom. Some minor injury or illness suggested to him the form that this was to take. A sore-throat suggested aphonia, an injury to his back the loss of use of one or both legs, a bruise on a shoulder a flaccid paralysis of his arm, an attack of gastritis persistent functional vomiting, and so on. The patient now had a physical disablement which ensured his escape from the impossible situation. It must be emphasised that to the soldier the illness was not assumed but was genuine. Any malingering can always be easily detected, and no-one with experience can ever confuse the true with the false.

These conversion cases probably outnumbered all other types of psychoneuroses seen during the 1914–18 war. Under the scheme here put forward these cases should be greatly diminished not only in numbers but in proportion to the other types. In the last war their preponderance resulted from the lack of understanding and of facilities for early treatment of the anxiety conditions, leaving no other escape from the strain except by a physical symptom which satisfied the patient that he was finally disabled. In this war, theoretically, no case should reach this stage, although in practice some cases of this type must be expected. A word with regard to the treatment of these cases will therefore not be out of place.

No form of compulsion or of painful treatment is of any value. This will succeed as a method only when the patient is away from the strain and on the way to spontaneous recovery; in fact, any small suggestion will remove the symptom when it is no longer required as a defence, and this need not be a painful stimulus. While the patient is still under strain, he will suffer almost any torture to retain the symptom which is his sole defence, and painful treatment is cruel as well as useless. If the treatment is too painful to endure, he will exchange one symptom for another—e.g., aphonia changes to stammer. From the beginning the patient should be left in no doubt about the nature of his symptoms, but the whole condition should be taken seriously, and he need not be made to feel any humiliation because he has a physical symptom without a pathological basis. The symptom should be left alone, no matter how strong the temptation to try and remove it. It serves as an indicator to the physician of the progress of the case. The purpose of the symptom having been explained to the patient, he can be reassured that it will disappear spontaneously when the strain has been relieved, and his treatment thereafter follows along the lines laid down for the anxiety cases—the rehabilitation should not be hurried because he shows no signs of emotional strain. This type of case has been dealt with at length because such patients are incorrectly handled more often than are the anxiety cases.

ORGANISATION

The scheme above outlined should be easy to organise. The only increase of personnel is the provision of a psychologist at each suitable base hospital and the equipment of a special rehabilitation camp, remote from the war activities, also in the charge of a psychologist. This expense would be more than compensated by the fact that the need for neurological hospitals in England would be greatly diminished.

HEALTH OF LONDON BUSMEN

ONE of the main factors leading to the stoppage of the London Central Omnibus services in the spring of 1937 was the widespread feeling amongst the drivers and conductors of the vehicles that the conditions of their work had, with the modern growth of traffic, become so exacting as to be definitely injurious to their health. In particular they believed that these conditions led to an abnormally high incidence amongst them of illness of the digestive system. Some evidence to this effect was placed before the court of inquiry appointed by the Minister of Labour to inquire into the stoppage, but it was not sufficient to convince the court that the busmen's occupations were in fact unhealthy. It was, however, sufficient to lead the court to advise further investigations. In consequence the Minister of Labour arranged for an inquiry by the representatives of three bodies—the London Passenger Transport Board, the Transport and General Workers' Union and the Medical Research Council—with Sir John Forster as their chairman. The result of their labours has now been published.[1]

From the statistical aspect they accept the main conclusion of Bradford Hill's report to the Industrial Health Research Board[2] which was published after the court of inquiry had completed its task—namely, that in the years 1933-35 the London omnibus workers in comparison with its tramway workers showed a small relative excess of gastric illnesses. This result they confirm by means of a similar comparison of the omnibus workers with the transport board's maintenance workers employed at Chiswick. With an eye to the possible errors of diagnosis in panel practice (only the first diagnosis being available), they sought more precise data from hospital records but were unable to devise any practical means of obtaining these both for the busmen and for appropriate control groups. Mortality data were equally uninformative. On the other hand evidence is given that the sickness-rate from all causes of illness, both of drivers and conductors, has not risen between 1931 and 1938, in spite of the growth of traffic which led to the operatives' complaints of the present intensity of their work. Despite the ameliorative changes in working conditions which followed the stoppage of 1937 those complaints were reiterated by the men's representatives whom the committee interviewed. They therefore made a careful study of those conditions, which are set out briefly in the report, and took medical advice upon the general question of the causation of gastric illnesses to see whether any special features of the work might appear to predispose the men to such forms of sickness.

The committee was particularly impressed by two aspects of the busman's work, the irregularity of the hours of duty and, in consequence, of meal-times, and the nervous tension and anxiety which operating a bus in central London probably involves. Irregularity of work is an inevitable feature of a bus service and the present agreement between the board and the union provides that turns of duty shall change weekly. So frequent a change clearly demands a considerable power of adaptation from the gastric system. On the other hand, a system of rotation of shifts on, say, a monthly basis, would mean that a proportion of the bus crews were engaged continuously on the heavier duties while others were working for a similar length of time on lighter duties. This, no doubt, accounts for the lack of desire of the men themselves for any such change.

Medical opinion was unanimous regarding the undesirability of irregular meal-times and the committee therefore advises the board and the union to consider a system providing a longer interval between changes of shifts. They also conclude that some spells of duty are too long and in these instances an earlier meal relief should be introduced. The actual duration of time allowed for a meal relief was not apparently a specific matter of complaint by the men, but, in view of their attitude to the "intensity of the work" and the problem of nervous tension, the committee advises that consideration should be given to a reduction in those reliefs which at present provide less than 40 minutes (a considerable proportion of the total). For the same reason they lay great stress on the provision of rest-pauses between journeys, the adequacy of which has been called in question by the busmen. These, they say, should be kept under constant review in the construction of schedules. The provision of facilities for the adequate use of such rest-pauses—canteens and rest-rooms, washing and lavatory accommodation—are being steadily pushed forward by the board.

The committee took expert evidence on the question of the absorption of carbon monoxide and other fumes by the bus crews, but were unable to determine whether, as the men believe, they contribute to the incidence of gastric illness. In general, however, it seems that under normal peace-time conditions the London busman feels the strain of his work. The ways and means of amelioration suggested in this report will, no doubt, be closely considered by all parties.

1. Health of London Central Busmen. H.M. Stationery Office, 1939. p. 49. 1s.
2. Industrial Health Research Board report No. 79, 1937.

STORED BLOOD FOR TRANSFUSION

WE have received the following communication from the Medical Research Council. It is signed by Drs. H. F. Brewer, M. Maizels, J. O. Oliver and Janet Vaughan, the directors of the four blood-transfusion depôts in the home counties.

Since the outbreak of war considerable use has been made of stored blood for the treatment of civilian patients needing transfusion. Reports that stored blood has a somewhat greater tendency than fresh blood to cause reactions appear to have led to apprehension in certain quarters. We believe that at least some of these reactions may have been due either to faulty technique in the preparation of apparatus, the withdrawal, storage, or administration of blood—or to the use of unduly hæmolysed blood—and that they should not be taken as condemning stored blood. Blood has been distributed to a number of hospitals from the four emergency blood-transfusion depots for London and the home counties, where the methods of collection and storage have been those outlined in the memorandum recently issued by the Medical Research Council. The reports returned have been uniformly satisfactory, although one observer, while appreciating the immediate restorative use in collapsed and exsanguinated patients, suggests that the tonic and anticoagulant value is less than that of pure blood.

Complete records of 160 miscellaneous cases, medical, surgical and obstetrical, are available. They were given in all 219 pints of blood and were treated in 41 different hospitals. The maximum amount any one patient received was six pints given as a continuous drip. Blood varied in age from a few hours to three and a half weeks. Group O blood was used in the majority of cases, but Group A and Group B blood was also provided on request. Slight rigors were recorded in 10 cases, but in several such instances inquiry showed that the blood had been given cold. In three cases there was transient jaundice; one patient passed red cells in the urine after transfusion, but the medical officer in charge was doubtful whether this could be attributed to the transfusion. No case of hæmoglobinuria was recorded. No fatality proved directly attributable to the transfusion of stored blood has occurred.

The importance of the following significant points must be stressed, if optimum results in the use of stored blood are to be obtained:

1. The anticoagulant solution should be prepared with freshly distilled water from a clean still, and it should be filtered and autoclaved immediately.

2. All apparatus must be scrupulously clean. In the case of the rubber tubing, a stiff wire carrying a swab or narrow elongated brush (e.g. a 0·22 rifle barrel cleaner) should be passed throughout its length, since mere washing under the tap is insufficient to remove small adherent pieces of clot. Rubber tubing freshly obtained from the manufacturers *must* be washed to remove the French chalk with which its inside is coated.

3. Strict surgical asepsis should be observed whilst actually collecting blood.

4. Storage should be carried out at 2°–4° Centigrade.

5. Blood showing undue hæmolysis should not be used. A zone of discoloration due to hæmolysis extending above the corpuscle layer up into the supernatant citrated plasma for ¼–1 cm. or less (this occurs very occasionally with blood over seven days old) may be allowed, but greater degrees including complete tinging of the plasma should be a definite contraindication to use.

6. Corpuscles and plasma may be mixed before the transfusion by as little and as gentle agitation as possible.

7. The blood should be warmed to body temperature before use; *the avoidance of overheating is equally important.* The highest temperature advised is 104° F.

The elimination of grouping errors as a cause of reaction is assumed.

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

WHO SHALL ADMINISTER MEDICAL CARE?

LAST year at this time the American Public Health Association was answering the qustion, Shall medical care be extended? This year at Pittsburgh the convention has gone on to inquire, How shall the enlarged programme of medical care be administered? and the incoming president, Dr. Edward S. Godfrey, Jun. (who is health commissioner of the State of New York), dealt with the plight of that third of the nation which is unable economically to provide for itself necessary food, shelter and medical care. The public-health profession recognises, said Dr. Godfrey, that its efforts must be applied first where the need is greatest but, he added, "there is a danger to both the quality and quantity of the services for the health of the entire people when public-health work is associated administratively with agencies dealing exclusively with low income groups of the population. Public health is something which should grow. Agencies for relief are something that should disappear." Dr. Godfrey admitted defects in public-health administration, but he defended with vigour the efficiency and integrity of public medical administration as contrasted with private medical care on a fee-for-service basis.

"We public health people," he remarked, "see many instances where the fee-for-service system of payment has interfered with the rendering of a complete health service. The interference is not merely the payment for the primary call, but the inhibition imposed on the physician against offering or suggesting services for other obvious needs of the individual or his family. . . . It is doubtful that any amount of public health education can overcome the economic and psychological barriers imposed by this system and its alternative of 'pauper' care. There must be something better.

"For my own part I want to reiterate my resentment of the imputation, implied or explicit, that a salary stultifies . . . that no medical health officer ever worked overtime, exercised any independent judgment or is anything more than a robot motivated by a monthly salary check.

"In a recent address a prominent exponent of 'organised' medicine asked the rhetorical questions whether we wanted England's, Hitler's, Stalin's or New Zealand's medicine or American medicine; whether we wanted socialised, state, or democratic medicine. . . . Aside from the propagandist questions . . . we may well ask ourselves what is American democratic medicine? . . . My answer is that it must be public health medicine, which means that it is preventive as well as curative medicine, that it is medicine delivered without distinction as to race, creed, occupation or income, that it is for no less than three-thirds of the people."

While we should be prepared to borrow freely from the experience of other countries, we also, Dr. Godfrey concluded, need American experience acquired through experiment.

General approval was given at the convention to the programme of the Committee of Physicians. The public-health administrators, however, expressed doubts about the wisdom of a national health council with administrative powers. Commissions of experts, they felt, tend to obstruct progress. They prefer to rely

on the prestige of a national medical advisory committee to prevent spoliation of the public purse by medical and lay politicians. But they are not very convincing, to your correspondent at least, when they attempt to describe how this prestige is to be attained.

DR. CABOT ON MEDICAL ECONOMICS

Fear of change accounts in Dr. Hugh Cabot's opinion for much of the present opposition to plans for improving the distribution of medical care. In a recent address to the Association of Women in Public Health he recognised the danger that waste and extravagance might result from a too rapid readjustment from private to public financing of medical care. If the government provides the funds, as it must, then the government becomes responsible for their proper use. It is quite possible by loose distribution of funds not only to fail to improve the medical attention which people receive but even to make it worse.

"At the present time," he said, "a fair proportion of the monies spent upon medical care is wasted on account of duplication of services, overlapping of effort, wasteful purchase of equipment, and payment for poor services. In so far as this waste involves only the funds of individuals and does not involve the expenditure of public monies, it is not a matter of public concern and may be regarded as one of the exuberant demonstrations of the wastefulness of freedom. But if government is to retain the respect of the community, it must make every effort to avoid payment for a poor article of medical service."

The first essential step then is to set up standards and to make provision for their perpetuation. Provision must also be made for continued adjustment of standards to keep up with advances in medical science. These standards must cover the fields of medical education, medical research, and medical care. To this end Dr. Cabot recommended the creation by the federal government of a General Medical Council to be appointed by the President and to have great security of tenure. To set up such a council will in no way interfere with the liberty of the individual; it is simply an assertion of the right of the taxpayer to have some assurance that his money will be wisely spent.

IRELAND

(FROM OUR OWN CORRESPONDENT)

AIR-RAID PRECAUTIONS IN DUBLIN

THE city manager of Dublin made a statement to the press last week on the progress of air-raid precautions in the city. He said that preparations have been going on since last January, but the passage of a legislative measure in August and the outbreak of war have awakened the public mind to a deeper and greater interest in the question of civil protection against attacks from the air. The basis of precautionary schemes is the air-raid warden service, and for this branch over 2000 volunteers have been enrolled, of whom 600 have been given a thorough training in warden duties. Eight premises have been erected as first-aid posts and the St. John Ambulance Brigade has placed its full existing strength of 1000 members at the service of the corporation. The brigade will supply the entire personnel for the first-aid posts. Some 1800 people not already members of the brigade are under training for this purpose. The brigade will also provide four mobile units, and will make provision for decontamination in case of gas attack. Steps are being taken to use certain of the voluntary hospitals as casualty clearing stations, providing in all 500 beds. In order to make such accommodation possible, it is intended to provide an evacuation hospital outside the city area to receive 300 patients from the hospitals when the danger of raids appears to be imminent. In addition it is intended to establish a base hospital well outside the danger zone; premises for this purpose are under inspection, but no definite decision has yet been made. The city manager also said that an auxiliary fire service is in process of organisation, and it is hoped to train volunteers at the rate of 100 a week until a personnel of 1000 has been established. Shelter accommodation is being provided for some 25,000 people. A transport service has also been arranged with the help of the Automobile Association and the Royal Irish Automobile Club.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

DYSENTERY IN AN EDINBURGH HOSPITAL

AT the outbreak of war many patients were transferred from the Eastern General Hospital, Edinburgh, to provisional accommodation at the hospital of the Craiglockhart Institution. Here at the end of September there occurred an outbreak of a comparatively mild form of dysentery. It has now settled down but there have been in all about 150 cases with four deaths. In most cases no dysentery organisms were cultured from the stools but in eight there were prolific Flexner growths. The outbreak apparently originated from a carrier among the public assistance inmates of the institution; the large number of patients affected was probably due to the importation of a large fresh population from the other hospitals.

EDINBURGH ROYAL INFIRMARY

At a meeting of the League of Subscribers recently Lord Russell, representing the managers of the Royal Infirmary, drew attention to the temporary reduction in the number of beds available for the civil population immediately after the outbreak of war. The Government was setting up base hospitals in outlying districts and the services of these hospitals would be made available to citizens in the surrounding districts. The Government had asked the managers of the Royal Infirmary if it would be possible for certain members of the honorary staff to be temporarily transferred to these base hospitals, and this had been agreed to. Lord Russell went on to say that a great deal was heard nowadays about the voluntary hospital system being on its last legs and that we must look forward to state supervision and control in the future. This was logical and it might ultimately come, but he felt that it would be a misfortune if the impulses of benevolence which were represented by voluntary assistance of an institution like the Royal Infirmary were allowed to pass out, and if the citizen was allowed to be satisfied by feeling that he had accomplished his duty in the matter of paying his rates and taxes.

At the same meeting, attention was drawn to the position of regular contributors to the infirmary funds who, when they required treatment, failed to obtain admission and had to enter the municipal hospitals where they were charged for treatment. There was considerable dissatisfaction among some groups of subscribers. In reply it was stated that negotiations had been proceeding between the board of managers of the infirmary and the town council but these negotiations had been interrupted by the war. The matter was still under consideration.

GERMANY

(FROM A NEUTRAL CORRESPONDENT)

PROSECTORS IN THE GERMAN ARMY MEDICAL SERVICE

Professor Aschoff of Freiburg has recently pointed out that in the past army medical services have considered pathologists superfluous. As a surgeon-general remarked: "Necropsies are not performed in war-time." It was only in the course of the last war, and thanks in particular to the initiative of Dr. von Schjerning, that a breach was made in this conception, and the services of prosectors were accepted in the German army. These prosectors justified their existence by the part they played in clearing up the pathology of gas-poisoning and the differential diagnosis of gas-poisoning and influenza. Professor Aschoff's plea is for the recognition and better appreciation of the pathologist in solving war-time medical problems.

CONFINEMENTS IN HOSPITAL TO BE DISCOURAGED

According to an order issued by the Reich Ministry of the Interior, women are to be confined at home provided normal labour is anticipated. It is pointed out that even in straitened circumstances and under the supervision of a midwife only, women labouring with child may fare better at home than in overcrowded hospitals whose patients are suffering from a great variety of diseases.

STIFFENING OF V.D. REGULATIONS

The public health authorities in Germany have issued instructions for tightening the control of patients suffering from venereal disease. It is decreed that the doctors in charge of venereal disease dispensaries must immediately report the source of infection in every case. Such notification is to be carried out not only when the patient neglects treatment or in other ways is a danger to society, but in every case and regardless of circumstances. It is hoped that these stringent rules will facilitate the discovery of sources of infection.

WAR-TIME DISTRIBUTION OF GERMAN DOCTORS

At the beginning of 1938 the total number of doctors in the Reich was 49,907. Among them were 3503 women doctors. Of the 38,000 practising German doctors at the outbreak of the war, approximately one-third has been allocated to army service. Measures have been taken to distribute the remaining two-thirds as evenly as possible among the civilian population. A medical reserve of more than 1200 doctors has been organised for filling in gaps as they occur. Such gaps have needed filling in Danzig, East Prussia and other parts where life has been dislocated by the war. Another reserve of 2400 doctors has been formed for service in hospital by the promotion of medical students who have reached their fourth clinical semester. The services of many married women doctors have also been requisitioned. As the city of Berlin has been provided with only 1500 beds for infectious cases, seven barracks are being run up in connexion with six hospitals to make good the deficiency in this respect.

FATAL ACCIDENTS

The rate at which fatal road and other accidents occur in Germany has increased considerably during the last few years. In 1937 this rate was 3 per 10,000, whereas it was 3·4 in 1938 and 3·7 in the first quarter of 1939. A comparison of the accident death-rates in the first quarters of 1938 and 1939 shows a rise of 9·2 per cent. Alcohol was a contributory factor in over 40 per cent. of the fatal accidents. It is calculated that in every quarter of the year some 1000 persons lose their lives in Germany on account of overindulgence in alcohol.

NECROLOGY

The following deaths are announced: Dr. G. Stiefler, professor of neurology at the University of Innsbruck, aged 62; Dr. Karl von Seydel, of the Bavarian Army Medical Service and honorary professor of the University of Munich, on his eighty-sixth birthday; Prof. Wilhelm von Speyr, former director of the mental hospital and lecturer in psychiatry at Berne, aged 87; Dr. Walter Krebs, founder of the institute for rheumatism research at Aachen, aged 71; and Prof. G. Schmeidel, in charge of the topographical-anatomical section of the anatomical institute at the University of Vienna, killed in action on Sept. 18.

MEDICINE AND THE LAW

Croydon pays for the Typhoid Epidemic

A NOTE in the *Times* of Nov. 9 summarises the cost to the Croydon borough council of the typhoid epidemic which occurred at the end of 1937. The items to be met included the damages and taxed costs awarded in the test case of the claim of Mr. Alfred Read on behalf of his daughter, and damages and costs already paid in other cases. The total is over £92,000, according to a statement issued by the finance committee; action is being taken to obtain the sanction of the Minister of Health to the raising of this sum by loan. In addition to this expenditure approximately £8000 (largely representing the costs of the Minister's inquiry) has been charged to general rate fund revenue, and £6000 (largely consisting of the corporation's legal costs in the Read case and in similar claims) has been charged to waterworks revenue account. It is stated that the number of claims now settled is 260 and that 28 of these were cases where death had occurred.

In the lengthy proceedings in the Read litigation, decided last December, the corporation entered no appeal. No other claims have been contested. Indeed, the corporation has gone out of its way to compensate in cases where the claim might have been barred on the ground that the claimants did not issue their writs within the six months prescribed by section one of the Public Authorities Protection Act or the twelve months prescribed by section three of the Fatal Accidents Act. It refrained from pressing any merely technical point by way of possible defence; but made up its mind to accept a general responsibility. It might, of course, be *ultra vires* for a statutory body like the borough of Croydon to pay away money where there was no legal liability. The corporation therefore promoted a bill (passed into law last July) to validate such payments. The preamble to the bill recited the fact of the outbreak, the result of the subsequent inquiry, the tracing of the infection to the Addington well, the commencement of several claims for damages, the decision in the Read test case, the corporation's desire (notwithstanding the availability of the technical defence that certain claims might be time-barred) to pay "such sums as they may determine to be reasonable in the circumstances," and the need of obtaining the authority of Parliament for this purpose in view of the legal doubts whether such sums could otherwise lawfully be paid. The act specified the scope of the compensation. This included any loss, injury or damage suffered by anyone through the contracting of typhoid fever, the medical or other expenses, and, where death occurred, the injury result-

ing to the dependants of the deceased as well as the cost of the funeral. There was an express proviso that the corporation should not be authorised to make any payment for the benefit of a deceased person's estate except the medical and other expenses and the cost of the funeral. Thus the proviso excluded the uncertainties introduced into the law-courts by the Administration of Justice (Miscellaneous Provisions) Act, 1934; judges and juries will not be asked to assess—nor the defendant corporation compelled to pay—the vague and almost aleatory values into which the new law translates a deceased person's sense of his lost prospects of living out the normal span. Against the cost of accepting an additional liability, and of promoting a private bill, Croydon can thus set the reduction of the scope of damages and a big saving in the costs of litigation. The households which suffered from the epidemic will contribute, through the rates, towards their own compensation. But, on the whole, a good precedent is set for meeting a difficult situation in a common-sense way.

Guilty but Insane

After three days' trial at Nottingham assizes last week Dr. Leonard Phipps Lockhart, charged with having murdered his wife at Beeston on Sept. 2, was found "guilty but insane." This form of verdict has been criticised over and over again. Judges are ashamed of it, but official prudence is too timid to propose statutory amendment. If a man is insane, he cannot form the conscious intention to commit murder; if he is guilty of murder, he cannot be insane. But, whatever the form, the result of the verdict is that the accused doctor is ordered to be detained during His Majesty's pleasure. He becomes, in fact, a "criminal lunatic"—another inconsistent and anomalous phrase. The abortive Criminal Justice Bill had proposed to substitute for this description the euphemistic "state mental patient." Not to linger over these verbal infelicities, the trial is important for the impressive evidence given by leading members of the medical profession on Dr. Lockhart's behalf and for the fact that their evidence was accepted.

On Sept. 2, the day before war began, the accused doctor and his wife were found lying in front of a gas fire in the study of their house at Beeston. Dr. Lockhart was unconscious but recovered after treatment in hospital. The prosecution proved that Evipan had been administered to Mrs. Lockhart and that she died of carbon-monoxide poisoning. The Crown case had been opened as possibly one of suicide pact; if the jury accepted this view of it, legal decisions establish that the survivor would be deemed guilty of murder. Mr. Justice Singleton, in summing up to the jury, seemed not to favour the theory of a pact. These were, he said, comparatively young people; it was not impossible that one would have tried to dissuade the other; in any event there was no proof of an agreement to commit suicide. Alternatively, the Crown suggested that evipan was given to Mrs. Lockhart, in the course of bringing about her death, by a devoted husband who trembled with terror at the thought of her mutilation by aerial bombing. Counsel for the prosecution suggested that the anæsthetic was administered in her bedroom and that the husband was thus able to carry the limp body to the study, place it close to the gas fire and arrange the death. The burden of proof was, as usual, on the prosecution except that, in so far as the defence of insanity might be pleaded, the accused's counsel would have the onus of displacing the legal presumption that every man is deemed to be sane and to possess a sufficient degree of reason to be responsible for his actions until the contrary is proved to the jury's satisfaction.

For the defence there was a possible suggestion that Dr. Lockhart might have been overcome with horror at finding that his wife had committed suicide. The main defence, however, was based on the accepted rule in McNaghten's case, namely that the accused, at the time of committing the offence, was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know he was doing what was wrong. Dr. Lockhart himself gave evidence. He told how he had visualised the prospect that his wife and he might be killed. Until he was charged, he said, he was unaware of the circumstances of his wife's death. Lord Dawson was able to speak of Dr. Lockhart from personal acquaintance. He had known him closely for two or three years and for a much longer time by reputation. He had formed an opinion of his capacity and character when he served on the medical committee of the national fitness campaign, of which the witness was chairman. He gave his evidence on the strength of the history of the case, the evidence of the witnesses and his personal visit to Dr. Lockhart in Lincoln prison. He judged him to be suffering from disassociation between the higher and lower levels of the brain. The higher levels would be "concerned with the greater part of knowingness." Without that knowingness he could not value what he was doing and could not choose. If he could not value, he could not choose. If he did not choose rightly, he had no actual power over his own conduct, no means of knowing what his conduct ought to be. In Lord Dawson's view the case conformed with a group of cases well known to the medical profession. The witness said he had taken great trouble to find out how far Dr. Lockhart's memory was affected. He concluded that his memory was lacking in the essential parts of the tragedy. There was a period in the centre when the accused's memory had undoubtedly failed; around that process area it seemed that Dr. Lockhart was not clear whether he remembered or not. Dr. F. H. Brisby, medical officer of Leeds prison, who had twice interviewed the accused in Lincoln prison, also referred to his memory. He said that Dr. Lockhart remembered a tourniquet being on his wife's arm and he remembered handling a syringe; he had recollections of her limp body, of its coldness, and of a smell of gas. Dr. Brisby said he formed the opinion that prolonged mental stress, acting on an unstable mentality, had definitely unhinged Dr. Lockhart's mind on the night of the tragedy. He might have known the nature of the act he was doing, but would not know whether it was right or wrong. Dr. E. F. Norris, medical officer at Lincoln prison, agreed that Dr. Lockhart, on the night of the tragedy, was a dissociated personality; he would be unable to exercise judgment on a question of right or wrong. Prosecuting counsel pressed these witnesses to say whether the fact that a man could get the necessary implements and could administer a hypodermic injection of evipan did not indicate that he knew what he was doing. Not necessarily, replied Lord Dawson; the executive side of the mind might remain intact while the knowing part of the mind was suspended. Dr. Lockhart in the witness-box had spoken of writing a letter and giving it to his wife; he had said that he remembered the purpose for which he did this. He had also written for his manservant's attention a notice saying: "Keep out, gas. Fetch police." Asked if this indicated a lack of appreciation of what he was doing, Lord Dawson answered that it showed a

partial lack of appreciation. Mr. Justice Singleton observed that the preparation for the anæsthetic would be considerable; could Dr. Lockhart, he asked, have done that operation without knowing what he was doing? Lord Dawson conceded that the case was complicated, but stated that such things had happened before. Evidence to the like effect was given by Prof. Millais Culpin and Dr. R. D. Gillespie. The defence had marshalled a body of expert testimony which was authoritative and lucid.

The plea of dissociated personality has now been accepted in circumstances much less luridly sensational than the story of Dr. Jekyll and Mr. Hyde. The lay public, to whose knowledge of this aspect of criminal responsibility Robert Louis Stevenson's story has hitherto been the main contribution, may ponder the Lockhart case and carry its education farther.

Wages during Sickness

Earlier in the present year the case of Marrison *v.* Bell caused some concern to persons interested in industrial welfare.[1] Lord Justice Scott's judgment managed to convey the impression that, where a workman was engaged under an ordinary contract of employment (by the month or even by the week), he was entitled to be paid wages during periods of sickness—to be paid, in fact, for services which he could not be present to perform. It was feared that employers, to protect themselves, would give an employee notice to terminate his service as soon as he was reported to be sick. In consequence it seemed likely that men would be reluctant to notify sickness. In Petrie *v.* Mac Fisheries Ltd. the Court of Appeal has now explained that Marrison *v.* Bell was misunderstood. The plaintiff worked as a packer in the company's fish-smoking department and was paid by the week. For short periods of illness in 1933 and 1936 he received half-pay when absent. This was in accordance with a notice posted in the company's works in 1926 stating that sick men would receive half-pay up to 21 days in any one quarter as an act of grace. There was no evidence that Mr. Petrie had seen the notice, but he knew of the arrangement and accepted money under it. On July 23, 1938, he became ill and was absent from his work until the following February when he was discharged. The decision in Marrison *v.* Bell seemed to be in his favour; he therefore sued for full wages for the period of his absence. The trial court gave judgment for him. On appeal he lost his award. Lord Justice Slesser said there was no general principle of law that a man who was paid weekly wages was entitled to be paid wages for services which he would have performed but could not perform on account of illness. There were many cases of servants employed by the day, by the week or even for longer periods where it by no means followed automatically that there was a right to wages during absence by reason of illness. Everything depended on the nature of the contract of service. Marrison's case, said Lord Justice Slesser, was primarily concerned with the effect of absence on sick pay under the national health-insurance scheme. The decision did not make new law.

It is still not quite clear whether the Petrie decision alters the Marrison decision. In the Marrison case it was said that the employers could relieve themselves from liability to pay wages during absence due to sickness by making specific provision for this contingency in the terms of service. Presumably Mac Fisheries Ltd. obtained this relief by posting up the notice promising an ex-gratia payment for a period up to 21 days in each quarter. Weekly wage-earners are seldom engaged under any formal contract of service. Litigation constantly arises from the consequent uncertainties.

1. *Lancet*, 1939, 1, 648.

GRAINS AND SCRUPLES

FROM RECHAUFFEUR

IV

If the medical profession was organised primarily for the promotion and application of medical research, what a different world we doctors should live in! Instead during the last hundred years it has been busy getting and keeping a certain position in society. Its individual members too have had to follow the same signposts to material safety and a secure social status. If doctors themselves do not think these things important, the same is not true of doctors' wives and families. As years pass the tendency to conform to the herd gets stronger, except in the most resilient minds. Even private means do not necessarily relieve the mind of these primary anxieties; in fact often the anxiety about the material future increases with accumulating wealth.

The result of this materialistic outlook is a forcible dislocation in the life of the student soon after qualification. Having got on to the first two or three rungs of the ladder of true medical knowledge, his attention is suddenly diverted to the personal economic factor which is going to be the basis of his professional life and he will be fortunate if he ever regains the serenity of his student days. As a new ideal in the "wider" life he is only too likely to take the phrase "no opposition" in the advertisements of vacancies in general practice.

Competition and opposition have become the idols of the herd, and I have heard more than one lady say that Dr. So-and-so would be more careful if there were more opposition to his practice. Careful? Yes, but of what? Of keeping up to date with medical knowledge did she mean, or of his manner of subscribing to the demands of the herd? If the medical man is only going to jump out of bed at night to an urgent case because he knows that if he doesn't somebody else will, the plea for the competitive basis for the profession is justifiable—and, as a matter of fact, the laity does consider that, of all the hardships our profession has to bear, getting out of a bed before dawn is incomparably the most terrible! Do they really think that only a strictly competitive life will compel us to submit to the arduous calls of duty? If so, the fear of failure or bankruptcy is going to be the basis of success, and not the following of medicine.

* * *

And don't the commercial organisations of this world know it? They invade our breakfast tables with their suggestion of "Here, you can't afford to miss this one" carefully wrapped up in the intensely flattering preamble "For the Medical Profession only." They are even good enough to remind us that we have had a scientific education, and that they are appealing to that careful mind of ours that is accustomed to weigh over our eggs and bacon the precise values of the scientific claims of their products. "Flatulax is a highly scientific preparation calculated in its purified methods of manufacture to supply a long-needed weapon to combat the physical and psychical lassitude that arise from the sluggish response

of the gall-bladder to the relatively ineffective stimulus to the duodenal mucosa that results from imperfect assimilation." That's glory for you! And on a highly scientific basis!

From that to the pseudo-scientific basis is an easy step; witness the anticipation, by about a hundred years, of endocrine knowledge, by the more enterprising organotherapy merchants who held the field in the nineteen-twenties even more strongly than they do today. Then the most reputable manufacturing firms had to follow suit. Between them, they gave birth to families of ingeniously mixed up proportions of glandular extracts, whose infinite variety (even down to the bronchial mucosa) age cannot wither (because they were never active) nor custom stale (until other firms can think of a better one). Occasionally a vendor of something or other, having been kept waiting in a doctor's house for an unreasonably long time, will drop the mask and say with refreshing frankness and point "Dr. So-and-so has ordered *two*." And if that eminent physician has ordered two, can *you* afford to be without one? Or why not order *three* and take the lead rather than follow it? And just look at your accumulating shelf of free samples.

* * *

No doubt there is round many a laboratory corner some scientific Scholar-Gipsy

> "Born in days when wits were fresh and clear
> And life ran gaily as the sparkling Thames."

When we go up to refresher courses we come across him and his immured enthusiasms. Such an one was the late Prof. E. H. Kettle. He knew well enough how much work there is to be done in clinical research by the whole profession. He was always urging one to select or collect series of cases in general practice and work out some principles of diagnosis or treatment. I think that if practitioners had the will to meet and formulate methods of treatment for a certain type of case to be used by all of them over a period of two years, such a method of research would not be ineffective. But our attention is eternally being distracted by material anxieties and demands of patients (who hate to be "experimented upon"), to say nothing of hobbies and diversions, so that the advice of the Scholar-Gipsy goes by the board. Only when we see him seated by his microscope—with faculties "firm to their mark, not spent on other things"—does a certain sense of what we lose in the outside world come down rather like a cloud. The solution obviously lies in freeing the would-be scientific clinician from the toils of competitive existence, and setting him to work where clinical material abounds. Socialised medicine under the great municipal councils can offer him the facilities without the slightest difficulty. How does this work out in practice?

Twenty years ago a campaign was launched by private individuals, among them Dr. F. J. Poynton, Dr. Reginald Miller and the late Dr. Carey Coombs, for tackling the national problem of rheumatic carditis in children. Here and there in the country efforts were made to follow up the disease in a mass of children both in institutions and after their return home. The results were promising but inadequate for drawing final conclusions, but one effect of it all was to draw the attention of the local authorities to rheumatism. As a result, a very large number of rheumatic children were withdrawn from circulation between the general hospitals, and their convalescence provided for in institutions. London cases were housed in one or two large municipal hospitals, where for the last ten years or so they have been treated and observed. Such children can be followed up by house-to-house visiting, related housing conditions can be inspected, and, in the County Hall, discharged patients can be re-examined by the clinicians who looked after them. I wonder whether this unique opportunity for clinical research is being utilised to the full, or whether clinical methods are being stifled under the routine of administrative work, with its multiplicity of forms which are composed and continually amended by alert clerical minds, to categorise the various contingencies to which patients are exposed, but to which clinical facts are peculiarly resistant.

That clinical instinct can be stifled by administrative detail is a tragedy but it is common enough. In the Royal Navy, one continual perplexity for administrative folk was the nomenclature of disease, and I got into trouble on one occasion for the diagnosis of two administratively incompatible diseases (gout and cystitis) in the same individual; nor was my suggestion that all disease should be divided into two classes—(1) diseases of the head and trunk, and (2) diseases of the organs of locomotion—received with any gladness.

* * *

An exchange from private medical practice of today to state-controlled medicine, also of today, is not necessarily going to break the bonds of the clinician. Bureaucracy may be as tyrannical as private anxiety, and the fear of making an administrative error may quench enthusiasm for clinical research—or even clinical practice. As of old, work will be done where individual talent exists whatever the circumstances, though who can say that circumstances are not sometimes a driving force to individual talent? Such exceptional circumstances have been occurring in the past few years in Europe, where the normal migration of peoples from east to west has been forcibly accelerated. Among the masses of refugees, there are many doctors. A little while ago I was visiting the large camp at Richborough, organised by the Jewish Lads' Brigade, where well over two thousand refugees from Germany were being housed, fed and cared for. Many of them were earning between two and three thousand pounds a year before the Nazi regime. Now they received sixpence and half a dozen cigarettes a week, and are grateful for it, and, though probably condemned never to return to their home, they are clean and cheerful. They are fed in three relays in a vast dining hall, and they get up concerts and entertainments regularly. There are eighty doctors there at present, but only three have British qualifications and are able to practise. I was shown the sick quarters and medical, surgical and dental departments. Thrown upon their own resources, these doctors have kept their work and equipment up to date; they even have an electrocardiagraph and carry out colorimetric blood-sugar estimations. I feel full of admiration for these medical men, banished from their homes and families, and carrying on in a strange land. Perhaps, I felt as I drove away, for man to give of his best to his profession, he has to be untrammelled both by private enterprise and by administrative organisation. At any rate, there stands the hospital near to the synagogue, the meeting place of the oldest race that still inhabits, albeit in precarious guise, the face of the earth.

Next month A North-country practitioner will be responsible for these columns.

LETTERS TO THE EDITOR

MORPHINE IN THE TREATMENT OF SHOCK

SIR,—Now that the treatment of traumatic shock has become a matter of national importance, I venture to draw attention to the widespread and unwarranted fear amongst members of our profession of the risk of overdosage of morphine in this condition. This fear is largely due to the over-cautious teaching of the standard textbooks, as an illustration of which the following passage may be cited from Prof. A. J. Clark's "Applied Pharmacology" (6th ed., p. 241), where he states: "A dose of at least . . . ¼ grain of morphine hydrochloride is required to relieve severe pain and sometimes a dose of . . . ½ grain is required. This larger dose produces considerable depression of respiration, and in the case of a severely wounded man will intensify shock and prejudice the chance of recovery." In point of fact the effect of a single dose of ¼ grain of morphia in severe pain of any kind is purely evanescent, and it is quite inaccurate to state that a dose of ½ grain to a severely wounded man will ordinarily intensify shock and prejudice his chance of recovery, since experience proves that the direct opposite is the case.

In their excellent article on shock in the "Encyclopædia Medica" (1924) Thomas and Kelly point out that Crile advocates the repeated use of morphia as a preventive in traumatic shock until the respiratory rate falls to 10–12 per minute. They themselves, however, wisely state that morphia should not be used where cyanosis is present, and that it is sufficient to give it in doses such that pain and restlessness are overcome. It should therefore be realised that it is impossible to lower the respiratory rate to a dangerous level with morphia (using repeated doses of ¼–½ grain) until pain has first been completely overcome.

In this connexion I may be permitted to repeat a personal experience. Some time ago I was called upon to render first-aid to an aviator who had crashed and was suffering from third-degree burns of both hands, as well as from incipient shock. His hands were completely flayed and bleeding, the nail matrices being exposed. He was in extreme pain and threatened with collapse. To this patient I administered gr. ½ morphine subcutaneously forthwith, and thereafter gr. ¼ as often as he reported the return of pain, which was approximately every quarter of an hour. In all, gr. 2½ morphine were administered to him over a period of two and a half hours. He was then removed to hospital where he was reported to have arrived in very good condition, and subsequently made a satisfactory recovery.

While indiscriminate use of morphine is not advocated, there can be no doubt that in severe pain and traumatic shock there is in general much greater danger to patients from insufficient than from excessive dosage with morphine.

I am, Sir, yours faithfully,

Cape Town, Nov. 4. J. WALKER TOMB.

SPONTANEOUS EPILEPSY FOLLOWING CARDIAZOL TREATMENT

SIR,—Dr. Arthur Harris's letter in your issue of Oct. 28, in which he records two cases of spontaneous fits occurring after treatment with Cardiazol, prompts me to report a similar case.

A well-built schizophrenic, aged 22, admitted in a state of noisy and incoherent excitement, was first of all given a fortnight's course of Somnifaine and insulin narcosis with no mental improvement. On the third day after withdrawal of the somnifaine she had a major epileptic fit, and three more fits on the fifth day. There was still no improvement five months after admission, and a course of insulin-shock treatment was commenced. Insulin injections totalled 33, and a satisfactory coma was produced on 20 occasions with a dose of 80 units. During the course, however, she had an insulin fit on six days, three to four hours after the morning injection. She was then discharged home much improved. Three months later she was readmitted in a state of depression, and was given 5 c.cm. of cardiazol intravenously. A strong convulsion was produced. Slight temporary cardiac embarrassment ensued, and no more injections were given, but seven days later she had a spontaneous major epileptiform attack with frothing of the mouth and tonic and clonic convulsions. No further spontaneous fits occurred, and she was later given a short course of insulin-shock therapy, after which she was again discharged. She has now remained perfectly well for a year; only the one spontaneous convulsion has been observed. There was a family history of mental disorder, but no history of previous fits, and no epileptic heredity.

In this case the occurrence of postnarcosis and insulin fits suggests that she has a low epileptic threshold, and this is supported by the fact that she responded promptly with but 5 c.cm. of cardiazol. The spontaneous fit seven days afterwards may have been due to the presence of an increased reflex irritability persisting for several days as a result of incomplete elimination of the drug.

In Hobson's case, cited by Dr. Harris, the patient also had a spontaneous fit seven days after cardiazol treatment, but as more spontaneous fits followed it appears likely that a latent epilepsy lasting a few months was made manifest. In Dr. Harris's two cases, however, a single spontaneous convulsion occurred one month and five months after treatment, and his suggestion that cardiazol played no part in their causation is problematical. There is no doubt, however, that the number of cases in which spontaneous postcardiazol convulsions occur is very small, and there seems to be no recorded instance of a permanent epileptic state being produced.

I am indebted to the medical superintendent, Dr. R. Stewart Kennedy, for permission to record this case.

I am, Sir, yours faithfully,

F. T. THORPE.

West Riding Mental Hospital, Sheffield, Nov. 9.

EXPECTORANTS

SIR,—Dr. Gordon Ward's unnecessarily acrimonious letter calls for a reply. His main criticism is that the observations lacked adequate controls; in my series every patient acted as his own control. If he is unfamiliar with the method, let me refer him to pp. 179–80 of Sir Thomas Lewis's "Clinical Science" (1934):

> "It will be observed that in treating chronic cases, whether we are dealing with cure or alleviation, the patient himself usually forms the control; we are not often driven to the cumbersome and less satisfactory device of control by treating two groups of patients. In the testing the patient is brought under observation for an adequate control period, its length depending upon the speed with which the remedy takes effect; and during this period his environment is maintained as constant as is necessary to keep his condition uniform and suitable for testing."

Fig. 1 in my article is correct despite Dr. Ward's inability to understand it. The percentage fluctuation in the output of sputum in one case was nought; this

is represented by the space at the extreme right of the figure.

Dr. Ward is at pains to explain that "the value of ipecac. cannot be tested to any advantage by administering it only to those who are already deeply under the influence of another drug." Without conceding that this statement is accurate, I desire to point out that my paper contains no conclusions regarding the effect of ipecacuanha *alone*, so that the implied criticism is irrelevant. It is well known that potassium iodide and ipecacuanha are frequently prescribed together in the treatment of chronic bronchitis, the rationale being that the one drug acts as an adjuvant to the other. Furthermore, the practice is justified on the grounds that the effect of the two drugs on the respiratory tract is brought about by entirely different pharmacological actions. With these considerations in mind the two drugs were administered simultaneously in the third part of the investigation and the results are summarised in fig. 6 of my article.

I regret that I omitted to state how often the drugs were administered: they were given four times daily at intervals of four hours.

I am, Sir, yours faithfully,

STANLEY ALSTEAD.

The University, Glasgow, W.2, Nov. 14.

CARCINOMA FOLLOWING CHANGES IN HABITS

SIR,—To those who are studying the effect of endocrines on carcinogenesis it may be of interest to report that carcinoma sometimes seems to follow some change in the physical or sexual activity of the patient. In the course of an investigation of about 30 cases carried out some years ago, I found that this was particularly noticeable in young people. The following cases illustrate this theme.

A woman aged 26 was married in December, 1926. After her marriage she had a very much easier life in every way. Six months after marriage there developed the first symptoms of carcinoma of the rectum.

A single man aged 26 was a baker. He enjoyed life and went out frequently to evening entertainments, usually with a girl friend. In 1931 he developed gonorrhœa. He was so disgusted with this disease that he gave up all his outings and spent his spare time mooning about doing nothing. He was treated as an outpatient at a London hospital for seven months. Just before this treatment was completed he passed some blood in the stool, and this was the first symptom of carcinoma of the rectum.

A man aged 25 was in February, 1934, found to have multiple abdominal carcinomata. The first symptoms of the disease appeared in September, 1933. Eight months previously he had married a widow with a large family. Coitus occurred once a month since marriage. Particulars of his sexual activity prior to marriage were not obtained.

A man aged 50 poisoned his hand in November, 1926. He was obliged to give up work and to rest for two months. Four months later he was found to have carcinoma of the floor of the mouth.

A man aged 61 retired from manual work in November, 1926. Five months later he was found to have carcinoma of the tongue.

A man aged 44 had a family of eight children. In 1934, owing to his wife's ill health, sexual activity was discontinued. A year later the patient developed the first symptoms of carcinoma of the rectum.

In all these cases there had been some change (usually a reduction) in physical or sexual activity for a variable period prior to the first symptoms of cancer. I made this special inquiry on account of a speculation that malignant cells may make use of a normal bodily stimulus to reproduce, especially if the stimulus should become excessive. The question therefore arose: would this normal stimulus to reproduce tend to become excessive if bodily activity were suddenly reduced? Cases of malignant disease often follow injury, and it should be noted that an injury is usually followed by a temporary change in bodily activity.

Can cases such as these be explained by the research worker in the light of recent experimental work, and have changes of bodily activity (physical or sexual) been found to influence carcinogenesis in the laboratory animal?

I am, Sir, yours faithfully,

Edinburgh, Nov. 7. W. RITCHIE RUSSELL.

THE SYMPATHETIC SYSTEM IN SEGMENTAL PAIN

SIR,—Mr. Campbell's explanation of the relief of pain, in his stimulating article in THE LANCET of Oct. 28, is not convincing; I suggest that it is not the interruption of efferent but of the afferent sympathetic nerves which causes the immediate cessation of pain and distress. My reasons for thinking this are:

(1) It is hardly conceivable that the severe pain produced by already established physiochemical changes in the leg could so completely and instantaneously disappear unless a sensory pathway had been blocked.

(2) His success in cases of intermittent claudication due to senile arteritis confirms my contention, as any vascular response to efferent sympathetic stimuli could no longer exist in these cases, owing to the rigidity of the arterial tree (proved by the absence of rise of temperature in the limb after sympathetic block). On the other hand, the chemical changes in the tissues which are responsible for the pain remained the same after the block or even increased as the exercise tolerance increased. Yet after block was established these patients could walk further without pain than before. This can only mean that afferent sympathetic fibres conveying the pain via the upper lumbar sympathetic ganglia had been interrupted. This is exactly analogous to the experiments of J. C. White of Boston on patients with angina pectoris and on dogs with artificial occlusion of one of the coronary arteries. White showed that the anginal pain could be completely abolished by blocking the 1st–5th thoracic sympathetic ganglia or by cutting the corresponding posterior spinal roots, although the responsible physiochemical changes persisted, just as in Mr. Campbell's patients.

It must therefore be concluded that most of the pain resulting from injury or damage to the deeper tissues of the limbs is not transmitted through somatic sensory nerves directly to the corresponding spinal segments, but through afferent sympathetic nerves or somatic sensory nerves which accompany the former up to the sympathetic ganglia and from there through the posterior roots and spinal tracts to the brain. It is curious that a block at the level of L1. should abolish pain of the leg and foot (L4.–S1.); this means that these sensory fibres probably ascend for some distance within the sympathetic trunk before entering the spinal cord through a ramus communicans. Ascending fibres of this type have been identified in the sympathetic trunk.

If the way of transmission of more deeply seated pain in the leg and foot is as suggested, then it should not be possible to abolish this pain by a low spinal anæsthetic extending only up to the level of L3.

I am, Sir, yours faithfully,

Blackpool, Nov. 13. W. UNGER.

A PLAN FOR BRITISH HOSPITALS

"The old order changeth, yielding place to new."

SIR,—I can only congratulate you and your special commissioner on the courage you have shown in storming the citadel. I have waited for the howl of wrath and indignation from the old gentlemen and from all the vested interests, and have been surprised at the ineffective bleat of protest from those who feel themselves so much assailed. For when one analyses carefully the letters of two well-known physicians (who, I am glad to see, have not assumed the anonymity of some of your correspondents) and that of another surgeon, one finds mainly criticism of such detail as to whether half-time service is better than whole-time for consultants, with vague generalisations about inheritance of freedom and traditions of service mixed with disgruntlement arising from the E.M.S. And what exactly does one of them mean in referring to the class just richer than "the poor" who can afford to pay £50 in fees and expenses? I have yet to meet this class. And what does another mean when he suggests that practising consultants can give students something which whole-time teachers cannot? What is this mystic something? Instruction on investigating a patient in private who can barely afford it, or instruction in being nice to general practitioners and inviting them to dinner, or even hints on how to cover up tactfully an occasional unfortunate mistake? And is it really a good reason for siting a hospital in the midst of a big city that it can be seen by charitable laymen and so supported?

The matter is too serious to be treated thus; it is hardly reasonable to expect your commissioner to lay down a perfect plan for all aspects of medical service in an article of a few pages. Rather we must consider it as a useful starting-point from which to put our house in order. One might assume from some of your correspondents that all is quite well with the voluntary hospitals and consulting medicine, and hence there is no need for them to think even in terms of constructive criticism. Actually the voluntary hospitals are not only dying but are in that moribund state in which patients fail to realise their condition. It is easy to talk of the voluntary hospital tradition, and easy to quote statistics about their financial health in the mass so long as one ignores their state of equipment or their rebuilding requirements; it is easy, too, for some to ignore the failure of recent appeals for money for current expenditure, and convenient to forget that patients must still often bring their own butter and eggs to supplement the one square meal given a day, and to turn a blind eye to the overworking and underpayment of nursing staff. Could the voluntary hospitals survive the extra expense of fair feeding of patients and staff and fair working hours for nurses?

As to rebuilding, the story is a sorry one. Three or four London hospitals, on cramped and noisy town sites, have built new structures incapable of elasticity or of the addition of new departments when such inevitably become necessary. Big hospitals or little hospitals refuse to combine or coördinate their activities or resources, and some excellent suggestions in this direction were never adequately explored before being turned down. Hospitals still fail to coördinate in coöperative purchase. And how long does an X-ray plant, for example, have to remain out of date before a medical committee can insist on its replacement if a generous donor cannot be found?

The only way to save the voluntary hospitals is to adopt some contributory or provident scheme and to change them from institutions dispensing charity to the poor to hospitals for the middle classes; but doctors (and hospitals) still oppose such schemes, quarrelling generally on adequacy of fees and not on matters of principle, just as they fought for their fees when the N.H.I. scheme was mooted or when the L.C.C. wanted consultants—while little or no mention is ever made of the public interest. Surely this is the paramount consideration, and the medical profession will deserve all the suspicion of the public until these problems are discussed wholly on this level.

Why should hospitals be in the centre of towns where sites are cramped, noisy and dear? Surely it is just as far from the periphery to the centre as from the centre to the periphery; once a patient with pneumonia has withstood the transference from his bed to the ambulance, the remaining journey is easier, and the half-hour from Highgate to University College Hospital is no more arduous than the half-hour from Gower Street to Highgate. A little study of the areas of the peripheral belts of a town can be quite instructive.

To what good end should the public be induced to prefer certain hospitals? Even now this allegiance wanes as municipal hospitals are so rapidly on the upgrade. The public needs *local* hospitals all over the country, all of them adequately staffed with men of sufficient training, experience and rank—hospitals in *any* of which a patient can safely entrust himself. When the municipal hospitals provide full outpatient and follow-up services, and adequate medical staffs, which they must soon do, the voluntary hospitals will find their position still more insecure. Anyone who has worked for the London County Council or seen and studied the work of the Middlesex County Council (for example, the fine new medical and obstetric blocks at the Redhill hospital) and who is aware of the 48-hour week for nurses in the M.C.C. and the 96-hour fortnight in the L.C.C., of the more adequate feeding of staff and patients, will not be so impressed by the advances in hospital matters under the voluntary system. It is not long ago that one London hospital advertised daily in the *Times* personal column for a hæmatological microscope—most dignified—hadn't they got one?

There is another important aspect to be mentioned. Decentralised, regionally controlled hospitals for selected communities can be built on cheap open sites, where functional considerations can be easily combined with elasticity for further development, and money can be saved by the elimination of unnecessarily expensive external and internal finishes more suitable for a Corner-house lavatory or a de luxe cinema. A new hospital need not cost £1,000,000 for 400 beds. A saved £500,000 may not capitalise all the necessary staff expenses but will go a long way towards it.

I think your commissioner's scheme is capable of expansion to allow, if necessary, of private consulting practice available for any rich people who may be left after the war, to allow also of greater coördination between the hospital and the general practitioner, and to incorporate many other health services that should be part of a large hospital. I am wholly in favour of the medical superintendent who alone can properly appreciate the medical functions of a hospital in relation to administration. I wholeheartedly agree with Dr. Dyke and Dr. MacWilliam.

Could you not now, Sir, follow up your commissioner's report with a *Lancet* commission to elaborate the scheme? Many young consultants, however much they may hope one day to pay supertax, will be only too glad to help you.

I am, Sir, yours faithfully,

Ashford, Middlesex, Nov. 12. HUGH GAINSBOROUGH.

SIR,—Whatever may be the advantages of bureaucratic control of our hospitals they will not be enriched by arguments based on false premises. Your special commissioner, disregarding this fundamental of fair controversy, proceeds by inference to condemn London consultants as dishonourable and dishonest. He declares, furthermore, that they are faced with bankruptcy. As to the causes of the decay of the consultant, one of these is alleged to be the growth of efficient general-practitioner firms. The astonishing claim is made that such a partnership practically never needs a consulting physician. This is tantamount to declaring that the well-qualified physician of the firm will never require a second opinion other than that which could be provided by one of his partners. How such omniscience is to be attained in general practice is not explained. It is only approached after a lifetime of service at a large hospital where the acquirement of knowledge is accelerated by the criticism of colleagues. In point of fact it is just these efficient firms of general practitioners which supply the consultants with the major part of their private work. The members, by virtue of their efficiency, not only recognise the occasions when help is needed, but also do not fear to ask for it. The suggestion that consultants get their patients by the charity of the G.P.s is not merely ludicrous; it is an insult to the integrity of the general practitioner. Incidentally, perhaps your commissioner can explain on what grounds the practitioner and his family seek consultants' advice when they themselves are ill?

The overcrowding of the London specialist population is given as another cause for the supposedly unhappy plight of the consultant who, it is said, can only with difficulty be distinguished from the consultoid. At first glance this appears to be true, but in actual fact the presence of consultoids and even of European professors is, in peace-time, of complete indifference to the true consultant. The latter being one who sees patients only when sent to him by the G.P. has nothing to lose by even the most foreign competition. The G.P. safeguards him as well as the patient. The consultoids, on the other hand, compete amongst themselves for the favours of that insignificant body of monied and none too intelligent persons that shuns the orthodox, short-circuits the general practitioner, and favours the charlatan.

Far from being moribund, true consulting medicine was flourishing until the outbreak of war. Your commissioner appears to have been deafened by the plaintive howling of the wolves, thus failing to note the contented purring of the lions.

As for the scheme of decentralisation, its waste of time and energy and its elimination of the all-important personal relationship between patient, practitioner, and consultant condemn it outright.

Let us have state aid for the voluntary hospitals, but not state control. We have seen the fate of consultants who entrusted themselves to the Ministry of Health and the British Medical Association and have learned our lesson, albeit a little late. In future no medical service shall be foisted upon the hospital staffs by the ill-considered scheming of busybodies, who with futile minatory gestures seek to hide the grievance which goads them—the realisation of their failure as doctors.

I am, Sir, yours faithfully,

Harley Street, W.1, Nov. 15. A. H. DOUTHWAITE.

SIR,—As a member of one of those general practitioner firms, the growth and efficiency of which your special commissioner suggests is one of the reasons for the decay of London consultant practice, I would like to record my own experiences. We have indeed found that there are comparatively few medical problems which cannot be accurately solved by local investigation and discussion between partners—but we have not found that we therefore wished to dispense with the help of the consultant. The consultant is not simply a diagnostician whose chief function is to see what the G.P. has failed to see; he is not simply an "eye-wiper." His great office is to confirm the diagnosis, emphasise the correctness of treatment, and reassure the patients and their friends about the accuracy of prognosis. The patient who visits Harley Street after a thorough examination by his own doctor and who comes back having heard that his illness has been correctly diagnosed and is being properly treated, does not, in my experience, feel that money and time have been expended needlessly. On the contrary, he is usually well-pleased and, I venture to suggest, has an increased chance of a speedy and complete return to health.

Many consultations are arranged each year in this practice, and I doubt if increasing efficiency—assuming this to be present!—is tending to decrease their number. I must admit that, from time to time, the consultant does detect a serious error in diagnosis, but this happens most often when dealing with the frank rarity usually in Dr. Walshe's speciality! As medical practice now stands, or as it stood before the war, I for one would deplore the disappearance of the consultant and would feel that my patients were indeed the poorer in time of illness.

What the position will be when Harley Street and all it means has ceased to exist is difficult to visualise. I imagine that patients will for many years to come continue to demand what they think the best at whatever financial sacrifice, whenever their own or their friend's health is concerned. It is not impossible that the day will come when the sick public thinks that the best can be obtained from some source other than Harley Street. But this change of attitude will not come in an instant and may well need some major calamity to produce it. If the present catastrophe has as one of its results this change of attitude then indeed the consultant, as he now exists, will be seen no more. But there will be many general practitioners, men in large partnerships such as my own as well as single-handed doctors, who will feel that this is yet another crime for which the Nazi regime must one day answer.

The plan for British hospitals has much in it which is clearly desirable, but it has surely been born for reasons other than the saving of medical consultants from ruin.

I am, Sir, yours faithfully,

Nov. 12. "JUNIOR PARTNER."

SIR,—No-one can deny that your special commissioner's article is constructive, or that his plan contains some definite improvements on our present system, such as the treatment of private and hospital patients in the same building, and the mass purchasing of basic hospital supplies. I am convinced, however, for the following reasons, that his scheme for nationalisation would not ultimately be to the advantage of the sick or of British medical science.

(1) Nationalisation of the hospital services is analogous to industrial combines and multiple shops, whereby competition and individual initiative are destroyed. If the hospital services should be nationalised, then logically the same applies to every other human activity, in other words, we should have complete Bolshevisation.

(2) A department under the control of a corporation, whether it be a national hospital corporation or a municipality, is fettered by red tape and liberty of action is restricted.

(3) Your special commissioner states that the competitive firm spirit would be retained. But this competitive spirit is still further stimulated in the voluntary system by the chiefs of the firms being engaged in private practice. There are many men whose interest in their work is a sufficient stimulus to further efforts, but there are also many who having attained the peak of their desires and a fixed and comfortable income slacken their efforts, though not enough to warrant their dismissal. Such men, having done first-rate work as assistants or registrars, would do second-rate work as deputy-directors or directors, were they deprived of the stimulus of private practice. Your commissioner dogmatically asserts that the paid part-time worker is not a success and that private practice after a time becomes more important than public service and a dichotomy of loyalties springs up. How can he seriously make such a statement when he considers the extremely high standard of work done in the voluntary hospitals? I do not know whether he has mingled much with members of the honorary staff of hospitals (he may be on such a staff himself) but I have yet to meet one who would shirk his duty to his hospital or hospital patient. This assertion is a slight on the medical staffs of every voluntary hospital, and is a contradiction of his previous statement that the standard of work is higher in the voluntary than in the municipal hospitals.

(4) He suggests that each firm should be directed by a whole-time director and deputy-director (corresponding, I presume, to the present full physician or surgeon and assistant physician or surgeon of the voluntary hospitals), with an average salary of £1600 and £800 respectively. In the London teaching hospitals it is unusual for a man to become an assistant physician or surgeon before the age of 35, or a full physician or surgeon before the age of 48 or 50. Thus in the scheme envisaged, after a man has spent five or six years and £1200–£1800 on his medical education, and a further ten years in acquiring specialised knowledge and attaining consultant rank, he can look forward to a salary of £800 at the age of 35 and £1600 at the age of 48. Such remuneration would not attract the majority of men with ability, so that the standard of work would be considerably lower than under the voluntary or a part-time system, and the general practitioner would be unable to secure "a first-rate opinion for his patients."

(5) Your commissioner states: "For the very rich there would still be the private consultant." Since the hospitals would be staffed by whole-time men, I cannot imagine what sort of a person this would be, how he could have obtained his specialised knowledge, and what claims he would have to be considered a consultant. He would, in effect, be a "consultoid"; thus for the rich too there would be inferior service. In fact, under this scheme the quacks in Harley Street would flourish and prey on the public even more than they do today.

(6) One of his arguments in favour of decentralisation is "the manifest benefits of country air and surroundings to patients, nurses, staff and students." With the exception of certain diseases of the lungs, which are amply provided for under the present system, it has not been proved that patients recover more rapidly in the country than in the town. I am on the staff of a small country hospital as well as a teaching hospital in the City of London. I have not observed that the patients in the country respond more rapidly to the treatment of their toxic goitre, gastric ulcer or pernicious anæmia than those in the town, nor that the staff of the town hospital is less healthy than the nurses and medical practitioners in the country. The disadvantages to a medical staff of living in the country are enormous. Unless each hospital had library facilities equal to those of the Royal Society of Medicine, the staff would be seriously handicapped in not having an efficient library comparatively near at hand. Meetings for the discussion of medical problems would be poorly attended, and the frequent interchange of opinions would suffer. It occasionally happens now that a man with specialised knowledge is asked for his opinion on a patient in a hospital to which he is not attached; such visits would be almost impossible were the hospitals scattered about the country. Private patients often insist when they are in a nursing-home under the care of a consultant that their practitioner should visit them once or twice a day; this would obviously be impossible in the country.

Two of your commissioner's reasons for recommending nationalisation are doubt concerning the future finances of the voluntary hospitals and the altruistic one of rescuing Harley Street consultants from penury. If the voluntary hospitals remain as they are, a Government loan will not be required, and any deficiency in voluntary contributions can be balanced by the inauguration of provident and insurance schemes. Your commissioner's remarks about London consulting medicine dying might equally be applied to every trade and profession in Britain, with the exception of the manufacture of armaments, during the last two years. Before the war consulting medicine was adversely affected by the series of international crises, for the slumps on the stock exchange produce their reverberations in Harley Street. The present danger of bankruptcy of some Harley Street consultants appears, however, to be the result either of their entering a scheme similar to the one under discussion or of the evacuation of large numbers of the London population. There is no evidence that they were approaching penury before the recent international disturbances. Once the trade of the country recovers, there is no reason why Harley Street should not recover as well. The statement that the services of a consulting physician are practically never needed owing to the efficiency of the physician in general-practitioner firms is too puerile to discuss. It is the efficient practitioner who, realising what an enormous subject modern medicine is and being concerned more about the welfare of his patient than his "pride," calls upon the consultant to a greater extent than the inefficient, who often mistakenly feels that by doing so he loses prestige in the eyes of his patient. I agree that the London "specialist" population is overcrowded, but this is due to the large number of pseudo-specialists, who trade on a Harley Street address. One of the greatest benefits to society would be some reorganisation to curtail the depredations of these gentlemen.

I am, Sir, yours faithfully,

Harley Street, W.1, Nov. 7. A. W. SPENCE.

SIR,—THE LANCET deserves the thanks of the whole profession for the report by its special commissioner. His plan should be the subject of discussion at every medical society throughout the country. Alternatively the scheme suggested by "Psychiatrist" might be adopted. I do not suggest that the plan is perfect but I strongly deprecate the attitude of some of your correspondents, prosperous consultants probably, who seem to think that scoffing and satire are appropriate methods of dealing with the problem.

The future of medical practice *is* a serious problem whatever may be thought by such correspondents. The development of efficient general practitioner firms is most desirable and will certainly reduce greatly the need for consultants. In my opinion some of the finest brains in the profession are engaged in general practice though they are often unable to develop their ability to the utmost from lack of time when in single-handed practice. The large amount of free service and the heavy financial responsibilities make the fees charged by consultants inevitable, but they are none the less a serious matter. The result is that any

patient too ill to visit the consultant at his own rooms and living more than 10 or 15 miles from London or a big city has no chance of securing his help unless he pleads poverty as a reason for reduced fees. When I was in general practice 150 miles from London I recall three-figure fees demanded from patients ill able to afford them, but making the sacrifice in the frequently futile hope that life might be saved as a result of the expenditure.

That the London specialist population is grossly overcrowded will be admitted by all who know anything of it and this is in some measure due to individuals whose only claim to the rank is the possession of private means adequate to maintain them in decent comfort and relative idleness in Harley Street or the immediate vicinity. Such a scheme as your commissioner has outlined may serve to reduce some of the present evils. But the man trained solely in hospital is seldom so good a physician in consultation as one who has had some experience of private practice. Therefore part-time service after the first four or five years should be preferred to whole-time except perhaps for a few possessing exceptional gifts for teaching or research, for whom special appointments adequately remunerated should be available.

The criticism of the opponents of decentralisation of hospitals found an appropriate answer in your last issue a page or two further on in the account of Bart's present activities under the heading In England Now. The same column in the issue of Oct. 21 gave equally valuable support to the views which your commissioner put forward.

I am, Sir, yours faithfully,

Nov. 19. F.R.C.P.

SIR,—Dr. Walshe is under a misapprehension if he thinks the schemes afoot are levelled only at the consultants. The Goth is already knocking at the gate of the general practitioner, as he will see if he reads some of the letters in your issue of Nov. 11. During 46 years of general practice I never once heard anyone sigh for a state service. Advocates of a state medical service appear to have the same opinion of the G.P. as Iago had of Othello—that he . . .

> "will as tenderly be led by the nose
> As asses are."

I hope the general practitioners will not part with their liberty and sell their birthright for a mess of pottage. If a man wishes to attain full fruition, he must live dangerously and not be "cribbed, cabined and confined" in a state service.

May I put in one word for consulting surgeons? Of all the men I have met during a long life, they are the most generous. No surgeon ever turned a deaf ear to my appeal and I never pleaded in vain for a patient. Why should a surgeon not have a fee of a hundred guineas for a major operation on a wealthy patient? If one considers the number of years he has to spend acquiring his skill during which he is earning only a pittance, we must acknowledge that adequate fees are but bare justice.

I am, Sir, yours faithfully,

Beckenham, Nov. 13. J. H. E. BROCK.

SIR,—We have read with interest the correspondence in your columns on your special commissioner's plan. It may not be out of place for students to write to a periodical which normally draws its correspondence from the qualified, since this is a question which affects those with the hope of medical practice before them as much as those who already derive benefit from the status quo.

We fully appreciate the desire of many of your correspondents for freedom of action and individuality in their work, but these essential factors must surely depend upon some basis of security if they are to be used for the progress of medicine. The system of voluntary hospitals is, to say the least, in an uncertain financial position, and we can see no future for organisations already verging on bankruptcy which after the war will be largely deprived of donations from an impoverished upper class. There seems, therefore, an opportunity for reorganisation in a more stable form, and it is for this reason that we welcome any system of collective planning. As students, we look forward to a time when we may receive a fixed salary, dependent upon our merits, which would allow time to carry out our work without spending our energy on making a fortune or struggling to make ends meet.

The main objections raised by your readers have been based upon the assumption that in any form of whole-time hospital employment all individuality and freedom of action must of necessity be lost. We should not forget that the practice of medicine is one of the most vital existing social services, and has long ceased to be merely a financial enterprise. As against the health of fifty million inhabitants of Great Britain, we have the plea for anarchy of some forty thousand doctors. Their assumption that, under whole-time employment, all freedom of action and of individual effort would be lost, amounts to an assumption that this service would be badly run. We find no suggestion in the article discussed that the practitioners' choice of specialists should be dictated or that progress within this organisation should depend on other than "the individuality, restless energy and imaginative vision" (to quote another letter) of those employed in it.

In comparison with the financial difficulties which have been and will continue to be precipitated by the war, the objections to the establishment of hospitals on the outskirts of London seem insignificant. It is well known that many of the voluntary hospitals occupy sites the vacation of which would provide them with immense wealth. From this source we could finance modern buildings and make a contribution towards their maintenance. The occupation by the London hospitals of key business and commercial sites is an anachronism, dating from the time when they drew their patients from their immediate neighbourhood. With modern transport facilities, the inconvenience to staff, patients and visitors, is small as compared with the immense financial and organisational advantages.

We are only too aware that in many organisations there exists little freedom of action and those in control of the production of red tape have run amok. But are we to compare an unstable existing system with so stultifying an organisation as the E.M.S. or the worse parts of the Civil Service? The power to avoid the errors of the past is surely in our hands.

We are, Sir, yours faithfully,

B. DELISLE BURNS,

Bedford Square, W.C.1, Nov. 12. A. DELISLE BURNS.

FACIAL PARALYSIS

SIR,—With reference to Mr. W. M. Morris's excellent series of cases of facial paralysis treated surgically (THE LANCET, Sept. 2, p. 558) may I suggest that diathermy should be used in all catarrhal cases? In recent cases it will hasten recovery in those who would recover without treatment, and it will reduce to a minimum those that do not recover com-

pletely. I have had good results up to nine months after the onset. If recovery is not obtained within three months, the nerve should be exposed. I devised an easy method of doing this some forty years ago. Chisel off the tip of the mastoid on a level with the stylomastoid foramen and throw it downwards with the insertion of the sternomastoid attached. The nerve is exposed where it leaves the foramen and can be followed upwards in the canal or downwards if it is severed below it. By this method a lot of time is saved in fat or muscular subjects and it is next to impossible to injure the nerve while exposing it.

I am glad Mr. Morris has again exposed the fallacy of using only an empty sheath for transplantation. His warning against electrical stimulation should also be taken to heart by those treating cases of infantile paralysis. I am, Sir, yours faithfully,

Melbourne, Oct. 15. W. KENT HUGHES.

MEDICAL LITERATURE

SIR,—In his delightful article on medical literature, Sir Robert Hutchison ascribes the deterioration of style in modern writers to the wide use of shorthand, the typewriter, and dictation. Perhaps his censure on these aids to composition is excessive. If bad writing were caused largely by them, we should have good writing by a return to the goosequill.

Surely one of the causes of a clumsy and inaccurate style is the failure to cultivate a sensitive ear by reading aloud and so checking our visual impression of the page. This method of improvement is favoured by the use of dictation and it is a habit which helps to eliminate what is superfluous, a habit almost as effective as the lawyer's rule of drafting—"Proceed on the assumption that every unnecessary word costs half a crown." I am, Sir, yours faithfully,

HARLEY WILLIAMS.

National Association for the Prevention of Tuberculosis, Nov. 18.

THE UNEMPLOYED AND THE E.M.S.

SIR,—I heartily sympathise with "Unemployed," whose letter was published in your issue of Nov. 11. But the newly qualified are not the only sufferers from the scourge of unemployment which has newly afflicted the profession.

I am a woman graduate of 3½ years' standing, with special experience in anæsthetics, awaiting a whole-time vacancy in this subject. When war broke out I was employed as a resident in a large municipal hospital, with one month of my year's appointment to run. On receipt of the enrolment form from the E.M.S., I duly filled it in, thereby committing myself to full-time service under the scheme. I therefore did not apply for any advertised vacancies.

Four weeks later I received a notice stating that, as I was under contract to a local authority, I was ineligible for service with the E.M.S. Shortly afterwards the local "stand fast" order was withdrawn, the new residents came in and I went out. Since then I have been unemployed. There are few vacancies for women, except in maternity and child-welfare, in which subjects I have no experience and less interest.

I have written to the Ministry of Health stating that, now that the cause of my ineligibility is removed, I wish to be enrolled, and stating my present plight. That was two weeks ago. I have received no reply. I suspect my case of being by no means unique.

In lavishing their favours on the resident staffs of voluntary hospitals, the E.M.S. is being grossly unfair to those in the municipal hospitals, many of whom are more experienced and, since they are less surrounded by—I almost said restricted by—specialists and consultants, more self-reliant than their colleagues in the voluntary hospitals.

I am, Sir, yours faithfully,

Shropshire, Nov. 18. D.A.

IT ISN'T CRICKET

SIR,—Relying on the spirit of honesty and fair play, which is a time-honoured tradition among your countrymen as well as mine, I venture to call attention to several inaccuracies in the review of my book, "Shock and Related Capillary Phenomena," published in THE LANCET of July 8. You state that I devote the first eight chapters to a summary of the pathology and physiology of the capillaries. Actually only the first four chapters discuss capillary phenomena. Again, you say that I make little mention of the mass of evidence contrary to the theory of traumatic toxæmia published in recent years. Chapter 10 is devoted to an analysis of such evidence, published since 1923. You suggest that I believe so firmly in traumatic toxæmia that I overstate the case. The significance of the evidence, upon which the theory of traumatic toxæmia was based, is depicted and acknowledged. But the combination of two reciprocal factors, *capillary atony* and *tissue anoxia*, is emphasised repeatedly as the essential mechanism of shock (Chapters 11 and 23). You say that the individual reader must decide how far my book clarifies his ideas on shock and how far it increases his confusion. An inaccurate and misleading review may be more confusing than is an application of the principles of capillary pathology to the problem of shock.

A reviewer may and should express his critical opinions of a treatise, but a resort to statements contrary to facts is distinctly "not cricket."

I am, Sir, yours faithfully,

VIRGIL H. MOON.

Department of Pathology, Jefferson Medical College, Philadelphia, Sept. 6.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 4, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1333; whooping-cough,[1] 143; diphtheria, 883; measles,[1] 175; enteric fever, 36; pneumonia (primary or influenzal), 534; puerperal pyrexia, 146; cerebrospinal fever, 16; poliomyelitis, 18; polio-encephalitis, 3; encephalitis lethargica, 7; continued fever, 1 (St. Pancras); dysentery, 47; ophthalmia neonatorum, 74. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns there was no death from smallpox or measles, 3 (0) from enteric fever, 3 (1) from scarlet fever, 5 (1) from whooping-cough, 22 (1) from diphtheria, 23 (4) from diarrhœa and enteritis under 2 years, and 40 (4) from influenza. The figures in parentheses are those for London itself.

Ealing, Darlington and Liverpool each had one death from typhoid. Fatal cases of diphtheria were scattered over 16 great towns, Liverpool reporting 4, South Shields 3. Birmingham had 4 deaths from diarrhœa, Liverpool 3. In Birmingham and Bristol 3 deaths were attributed to influenza.

1. Measles and whooping-cough were made notifiable on Oct. 23 by provisional order which cannot become effective in most areas for several weeks.

Prof. Grey Turner has been elected a corresponding member of the Surgical Society of Buenos Aires and an honorary member of the Society of Hospital Surgeons of Santiago de Chile.

. . . . IN ENGLAND—NOW

(FROM OUR PERIPATETIC CORRESPONDENTS)

IT was the sandbags that gave Brompton the first impressions of emergency. Nurses, doctors, clerks, porters and willing outside volunteers digging furiously among the shrubberies filled 20,000 of them and they made the hospital look more like a fortress than ever. The "standby" telegram brought a feeling of unrest and discomfort, but it gave time for final preparations, and there was almost a sigh of relief when at midday on Sept. 1 the "clear hospital" order came through and thought could be translated into action. Thirty miles away, Frimley had been warned, and by 3 o'clock as many of its patients who could go home without detriment to their own health or that of their families had left; those with artificial pneumothoraces carrying a complete little dossier of their cases and instructions when and where to report for the continuance of this vital treatment, which even wars must not interrupt. All who still needed definite institutional treatment or had no suitable homes to go to were retained.

At Brompton as if by magic a fleet of cars (volunteers all) poured into the Fulham Road and, smoothly directed by previously trained traffic controllers, were away in 90 minutes with 102 patients, their luggage, notes and X rays, 30 nurses and as much equipment as could be put in. With them went two removal vans with the entire beds and bedding that Frimley would need. Frimley was ready. With two London policemen patients, who delayed their evacuation for the purpose, the incoming stream of cars was marshalled, and after a strenuous few hours in that sweltering heat, the new arrivals were bedded fed, and their medical and nursing needs supplied. By 9 P.M. Frimley was asleep in the dark, holding 205 hospital cases and 30 extra nurses, in place of its normal 150 sanatorium cases. "Blackout" screens had been prepared for essential service rooms, but the long, many-windowed wings had their fuses withdrawn, each patient and nurse being given a torch, and all that was seen was the occasional flash of these as the new nurses hurried round finding their bearings and accommodating themselves to makeshift conditions. One hitch there was, but that was soon remedied, for before the dew was off the grass next morning a Brompton house-physician arrived with his car piled high with bedpans. Twenty-eight stretcher cases still remained in Brompton, and when they arrived in huge Green Line ambulance coaches they had great tales to tell of the air-raid warning in London and the pleasures of being pushed into corridors and how hard it was to breathe with a gas mask if you were short of breath already.

Brompton was empty, but not idle. The wholesale evacuation of sanatoria and the closure of many clinics meant a dangerous situation for the civil population that had to be met. On Monday the outpatient department started work, and carried on with no break in continuity throughout the day. Maintenance of artificial pneumothorax treatment was a primary need. With the radiographic department working at full pressure and a willing band of skilled helpers an all-day artificial pneumothorax clinic came into force on that Monday, dealing with an average of 350 cases a week, with a peak on one of the early days of 150 at one session. Another serious situation was the sudden and complete cessation of all possibilities for thoracoplastic surgery. Many patients had had one or two stages of the operation and delay was physically and psychically most detrimental. But within 14 days of the outbreak of war major operations were being done in the emergency theatre, which had been prepared on the ground floor in one of the peace-time consulting-rooms. Now surgical work is once again in full swing, all the 75 beds allotted for civilian sick are occupied, and the usual facilities for post-graduate teaching are once more in train.

It was a picnic; but those who helped Brompton to make good during that busy September counted themselves lucky to have plenty of work, and good work at that, to do when they heard the woeful tales from elsewhere of empty hospitals, and doctors and nurses keyed up and keen to serve.

* * *

Railway journeys before the war were a joy. Now as the train meanders from station to station, I long for a car and a widow's cruse of petrol. Still, there is one consolation. I get more time for reading my Penguins. A few days ago I picked up a new "special" by W. B. Curry, the headmaster of Dartington Hall School, called "The Case for Federal Union." I read it with all the greater interest because of a letter to the *Manchester Guardian* which caught my eye recently. It was signed by 57 men of science, all of them fellows of the Royal Society, and it urged that when the war ends a new international order going far beyond the League of Nations should be set up. All nations prepared to renounce war between themselves should be invited to unite under a common federal government, which would have the power to use armed force against aggression, would control the raw materials of undeveloped territories in the possession of member states, and would educate backward communities without racial discrimination. No mean undertaking! Still I do not think it is impossible. Mr. Curry puts his case something like this.

In 1914 we entered a war with the professed object of putting an end to German militarism. After only a quarter of a century we are engaged once more in the same enterprise. In the last war Germany was decisively beaten, and the peace terms were dictated by the allies. We imposed on Germany terms which it was thought would cripple her so completely that not in our life-time at least would German power and ambition again be able to assert themselves. We fought a war, we won it, and we failed to achieve the object for which millions died.

We have, we say, no quarrel with the German people; our quarrel is with the German government. That is what President Wilson said when he entered the war in 1917. If we content ourselves merely with the defeat of Hitler and his government and allow ourselves to believe that Hitlerism alone is an obstacle to the peace of the world, then we shall no more achieve an enduring peace at the end of this war than we did in 1919. Then we were content with isolating and trying to eliminate the immediate cause of a particular outbreak of an epidemic disease, without bothering to ask what were the basic conditions which make it possible for this sort of outbreak to occur. War has become endemic in human society and since the continuance of war is probably incompatible with the survival of civilisation, speedy research into fundamental ætiology is needed.

If one observes that certain diseases are common in some parts of the world and absent in others, these diseases cannot be ascribed to factors in the human constitution which are common to all humanity. Rather must one isolate the factors which distinguish those parts of the world in which the disease occurs. In the same way, one may observe that some human groups are in the habit of fighting while others never dream of it. Each kind of group contains the same selfish, pugnacious human beings. The only respect in which the fighting groups differ from the non-fighting groups is that the fighting groups are sovereign states, each acknowledging no authority superior to its own will. The states of Pennsylvania and New Jersey are constituent members of a larger unit organised on federal lines. The governments of these states have authority only over strictly internal affairs. They have no armed forces, no foreign offices, no power to impose tariffs or interfere with free travel, since these are all matters affecting the United States as a whole and are dealt with by the Federal government. Because there exist in the United States organised control of the affairs common

to the whole Union, problems are dealt with in an orderly fashion long before they are sufficiently acute to make an outbreak of war likely. If one of the states of the American Union were to produce a Hitler who set about organising storm-troopers so as to capture the machinery of the state and later impose its will upon its neighbours, he would be arrested by a few policemen on the charge of conspiring to break the peace. As it has turned out Hitler could not be interfered with in the early stages because Germany is a sovereign state and the world community has no government, and no effective legal procedure for dealing with international crime at a pre-war state.

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In countless ways the world is already an international community. Science and medicine, art and literature know no frontiers. In our international exchanges occasions for conflict must sometimes arise. Hence the need for government, since government is the only alternative to combat that mankind has hitherto discovered. The world suffers from too much national government and too little international government. If after the war we are to build something better, we must make it clear to our allies, to neutrals and to the German people, that we are prepared to pool with them our resources and to surrender part of our sovereignty in return for similar action by them as a contribution to a new commonwealth of nations.

The League of Nations was not a government and was never intended to be. It was an association of sovereign states, which, because the states insisted upon retaining their sovereignty, could only reach decisions after unanimous agreement. Such a system has in the past never worked. On the other hand the alternative method of inter-state government, the federal method, has been found to work satisfactorily in the United States of America, the Swiss Confederation, the Dominions of Canada and Australia, and the Union of South Africa. If it is to become a matter of practical world politicals, during this war there should be close study of the problems of world government so that plans will be ready when the war is over. Such plans should be publicly discussed and if agreement can be reached, a war-aim with an appeal to reasonable men on both sides might emerge.

Rational planning now is important for another reason. In the last war too many people were content that we should win the war first and then decide what use to make of the victory. They forgot that unless a nation exercises the most resolute self-control it is bound as the war progresses to become filled with a hatred and bitterness that make a decent peace impossible. It is easy now to say that we have no hate for the German people. It will not be so easy when the casualty lists begin to be published and our towns begin to be bombed. If this victory is to be worth securing we shall need to keep steadily in mind, day in and day out, that this war must have a constructive purpose, and that that purpose would be frustrated if we allowed ourselves to be dominated by mere hate.

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In this wearing time it is the small things that have annoyed. Most of the air-raid wardens have been models of politeness, apologetically drawing attention to the fact that the curtain is quite efficient but not quite drawn, or quite firmly pointing out that the substance was not light-proof. Down our street there has been but one exception: a self-appointed sub-warden of the female sex who knocked rigorously and, when the door was opened, said, "Ahm from the warden's house." Fortunately there were two wardens already in the dining-room discussing the large window, so we were able to deal firmly with her. Then there was the big burly man, quite polite, but not quite tactful when he emphasised the fact that the light through a certain window could be seen *right down the road*. Those last few words were redundant; the fact that the light was seen, owing to a certain door being left open, was enough. But worst of all was the fool of a husband who was taken out to see a window at which his wife had been working for two days, and then called out, "My dear, you've not begun to get that window dark yet." It is things such as these that precipitate a nervous breakdown; the long mental strain might do no harm if a spark were not added at the end.

Shopping down the High Street for some time was almost limited to black-out materials. Woolworths was out of curtain rings of a certain size and of rolls of sticky paper with which we usually seal down parcels; and a girl was standing at the counter at which dark shades and torches were for sale. Small shops that we have almost forgotten, such as that where schoolgirls buy their paints and drawing-pads, have come into their own again with unexpected stores of drawing-pins and brown paper. All the activities have not been commendable. There was for instance the notice in the window of our chief drapers, one of a chain of stores throughout London, announcing a material at one-and-six as "absolutely" light-proof. When the young lady who sold it was shown that by merely holding it to the light one could see that this was not so, she replied that it was if you fluffed it up. The young man was more outspoken. He agreed and said he had drawn the manager's notice to the false description but had been told they had got to get rid of the stuff. Such methods of salesmanship are deplorable at such a time and come hard upon those with lesser incomes. They believe they have purchased a black-out cloth at eighteen pence a yard; they find by the time they have had to put it fourfold on their windows that it has cost them six shillings. In the defensive war of nerves that all are now waging, it is annoyance and a sense of injustice which makes the harassed person's mind finally give way. We have to keep our eye on Sept. 2, 1942; and it is small points such as these which will determine whether we shall last out the three years the Government has set before us.

It is the same with the petrol ration. There are those who assume that a doctor can get as much as he likes, and will rush about the country just as though there were no war; there are those who expect us loyally to keep our private driving to the ordinary ration, but who have no idea that we should economise on our emergency units. I lay no claim to any special virtue when I say that I am getting some amusement out of doing much of my work on foot or by bus in these quiet times of practice; keeping my emergency ration for when I am suddenly called out or for triangular rounds that do not lend themselves to other transport. Again, what will happen by Sept. 2, 1942, depends, to a very great extent, upon how many members of the community can be changed from the first of these categories to the second, and from the second to the third.

The Lancet 100 Years Ago

Nov. 23, 1839, *p.* 342.

From a leading article.

In Edinburgh, Dr. HAMILTON, the Professor of Midwifery, has recently departed this life, and created a vacancy in one of the University chairs. The election of his successor is vested in the Town Council, who really seem as though they hoped to do right in the appointment, though they appear not to know how. . . . What is to be done with the six candidates? Hustle them well in a sack, and then let the town-clerk seize the top man by the hair. The present plan of intrigue and solicitation cannot be worse. Nay, it is not so bad. The best teacher may be caught in the one case; in the other, the Council will have the best courtier. In either event, what injustice to the students, how great a wrong to medical science! My Lord PROVOST and Honourable Councillors, let the candidates compete. Put them to the *mental trial*. Test their capacities to fill the post of oral teacher by a few public lectures on the practice of midwifery.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

ONE of the most important activities of the House for members of His Majesty's Forces was the getting of the statement on allowances to dependants out of Mr. Hore-Belisha. Owing to pressure from parties on all sides of politics the allowances to children have been raised. It has also been made possible for a further payment up to £2 a week to be made "exclusive of and in addition to the other allowances" in cases of hardship due to special factors such as rent. This will add to the ten million pounds of children's allowances which the present scheme costs the Army a further two million pounds, which is expected to be doubled "in due course." The allowances to wives cost twenty-five million pounds and there is the possibility of dependants (such as parents) other than children being included in the future. The increase is satisfactory to the House and is the result of representations made privately by members to the ministers concerned and of a debate in the House in which the strong feeling on the matter surprised the Cabinet. The function of the House as guardian of the rights of the citizen—and the armed forces are citizens undertaking especially arduous and dangerous duties—remains unimpaired.

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Another example of this function of the House was in the discussion on the Official Secrets Bill drafted to meet the situation which arose out of the case of Mr. Duncan Sandys, M.P. and his questions to the Minister of War. As Mr. Wedgwood Benn said when speaking for the Opposition on Wednesday last, "We are dealing with something which is to become permanent legislation, and it is something to our credit that in the middle of the war the House of Commons should be enlarging the liberties of the subject in this way." And he said further, "it is something which the neutrals should observe, that this is the only place in the world where a deliberative assembly is enlarging the freedom of the press." What the changes in the Official Secrets Act amount to is that "power to require information" from anyone by the police (and only by the police) is granted only in cases which deal with espionage. It is perhaps equally significant of the feeling of the House that this Official Secrets Bill debate began at 6.34 with a statement for the Government by Sir John Anderson and finished at 7 P.M., when the House adjourned. Cynics may suggest that this is due to the blackout. But when members are really to some extent divided in opinion the debates go on quite late. The education debate on the next day began at 4.17 and the House did not adjourn before 10.51.

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The education debate was one of very great importance from the civilian point of view and if it never drew such a big gathering of members to listen as a statement by the P.M. or Mr. Churchill would have done it drew a gathering of M.P.s almost everyone of whom had some special knowledge and almost everyone of whom wanted to speak.

Mr. Lees-Smith in opening the debate made a particular point of public health and medical services in connexion with schools, basing himself, as he said, on "a very careful study of the possibilities of distributing doctors and nurses" made in a previous debate on evacuation by Dr. Haden Guest. This made it plain that "there are enough services available, properly distributed, to provide for a nucleus for the hospitals, ready for emergency, and at the same time to carry on our public health services, our medical services, to provide mobile clinics in reception areas and, what is most urgently needed, the service of consultants, of which the civil population is now being deprived." Mr. Lees-Smith also dealt with the subject of communal meals, the problem of providing leisure occupations for children and expressed his great appreciation of the very valuable work done in the reception areas and said how this had "come from the leaders of all the churches who have described them as heroes and marvels." To conclude this opening speech a striking testimony to education was given as the result of a War Office inquiry on the condition among the new militia men, 250,000 in number. Offences serious enough for the commanding officer not to deal with them himself "can be counted on the fingers of one hand." And, Mr. Lees-Smith added, "That is a really remarkable record, without precedent among tens of thousands of men for that length of time in the British Army or in any army at any time, and that is the justification for the schools of this country within the last 10 years."

Mr. Kenneth Lindsay, an old Oxford Blue, who is now parliamentary secretary to the Board of Education, replied with a modified rhapsody on the delights and advantages of children being in the country—he looked forward to a great new body of children for the first time seeing an English spring next year—a rhapsody modified because it was necessary to give facts, figures and conclusions about children in the town (evacuation) areas and in the neutral areas as well as in the country.

Of the nursery school age there are about 150,000 children, that is children under five, in the reception areas, and some of them are in units as nursery schools, in some cases in ideal conditions. Speaking of children as a whole, although Mr. Lindsay said an accurate figure was impossible, there are about 900,000 children in the evacuation areas, 1,700,000 in the neutral areas and 2,500,000 in the reception areas. Because children cannot be allowed to run wild the schools and the neutral areas are to open "as soon as possible" and schools in the evacuation areas are to reopen "on a voluntary basis" (no compulsory attendance), for children of the years eleven to fourteen, when some form of air-raid protection is provided.

The difficulties of reopening schools in the evacuation areas are not only those of providing protection, they are those due to the commandeering of school premises for A.R.P. and other purposes in whole or in part. In Manchester more than half the school buildings are so requisitioned or commandeered, in some other towns the figures are lower, but in London the number is great. It may indeed be necessary to have double shifts in some town schools because of this, or schools and civil defence will have to share premises.

These figures and these considerations apply mostly to elementary schools. The figures for secondary schools are different. Figures for certain areas are interesting but need a geographical knowledge of the area in question for their precise interpretation. Newcastle evacuated 80 per cent. secondary schools, London 60, Portsmouth 71, Southampton 74 and Manchester and Birmingham over 50.

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Another aspect of education referred to by Mr. Lindsay was the provision of communal meals, which he referred to as "the natural extension of our school

meals policy." The overhead charges in connexion with communal meals—provision of premises, cooking, service, &c., will be paid for by the Government out of the billeting fund. Mr. Lindsay thought that under the circumstances a really good meal could be provided at from 2½*d.* to 4*d.* Unfortunately, what one may call the county authority reaction to the communal meals suggestion is very variable. Some counties have done nothing at all. It seems, indeed, as if the Ministry will have to "persuade" certain authorities before any developments will occur.

Mr. Lindsay gave a rosy picture of the school medical and public health medical services and said quite truly that they had revolutionised the health of the school child "during the last thirty years." On the immediate problem Mr. Lindsay said that "a band of inspectors, doctors and nurses" had flowed out from London, Manchester and elsewhere to the reception areas. About Manchester and some other areas I do not know, but about London the nurses in the band were very few indeed and quite insufficient, and the doctors were absent up to a fortnight ago and the inspectors were none too many.

The school medical side of the reception areas still indeed leaves much to be desired, and if Mr. Lindsay would add a memorandum on "School Medical and Nursing Services and how to get them," to the other excellent memoranda already issued, he would be doing much good in the country and carrying out his own enthusiasm in a practical way. Lord De La Warr, the Minister of Education, listened to the debate, the solitary lord in the Lords' gallery. He would probably agree.

FROM THE PRESS GALLERY

Education and School Medical Services

IN the House of Commons on Nov. 16 Mr. LEES-SMITH said he warmly approved the decision to reopen the schools in the evacuated areas. He could not contemplate 750,000 children spending the next three years without any education at all, and there were only two alternatives: to reopen the schools in the evacuated areas or compulsorily to evacuate the children so that they would get their education in the reception areas. In time of war, he contended, it would not be practicable to enforce a system which went contrary to the deepest human convictions. One of the main purposes of opening the schools was to have a central organisation around which they could gather all those services which were not directly educational, but which between them were almost as important as teaching itself. Schemes for milk in schools, medical service, nursing service, the treatment of minor ailments, dental clinics, and so on had practically come to an end, because the only unit on which they could be based had been closed down. In the early stages of the war doctors were concentrated in the hospitals and were now compelled to spend their time perhaps playing billiards or golf while services outside were being starved in every direction. It must be possible to mobilise the medical and nursing services so as to enable them to carry on their work outside the hospitals, while allowing them to stand by to return to their posts if air-raids started. Dr. Haden Guest in the recent debate on evacuation had made it plain that there were enough services available, to provide for a nucleus for the hospitals ready for emergency, the public health services, the medical services, mobile clinics in reception areas, and consultants for the civil population. Referring to the problem of physical health Mr. Lees-Smith said that he understood that the National Fitness Council still existed through the Act of Parliament, but that its grants had been withdrawn. He hoped it would now be admitted that it had been a failure and would be brought to an end, its work being assigned to local authorities.

Mr. KENNETH LINDSAY, parliamentary secretary to the Board of Education, said that for two years the National Fitness Council had been trying to make a fitter Britain, but its efforts had had to be postponed for the moment. The Government were anxious that all schools should open as soon as possible, and the Minister for Home Security was asking regional commissioners to use their good offices where local difficulties were preventing reopening. The Minister had issued to all authorities and chief constables a circular asking them to release school buildings as soon as possible. A circular was also being issued on communal feeding. When London children were scattered from the Wash to Land's End there were difficulties in supplying a proper medical service, but a brave attempt had been made to meet them. The difficulties in regard to milk in schools were now also being overcome. The problem of free meals hardly arose, because owing to the billeting arrangements the children were all fed on the same basis. The provision of communal meals was the natural extension of the school meals policy. It should be possible to get a really good meal at these centres for from 2½*d.* to 4*d.* In neutral areas where the schools were opening the school medical service was operating. It was not so easy where there was only a skeleton service, as in the evacuation areas, but they were trying to keep the children clean and now that the schools were being opened the service was being extended day by day. Some authorities had displayed great resource; others had been so handicapped by the demands of Civil Defence, the commandeering of clinics and cleansing stations, and in other ways, that they had neglected this aspect of the problem. There were about 150,000 children under five in the reception areas, and there were 40,000 unaccompanied children. Nursery schools were out of the question, and it was not a problem which could be solved by creches and day nurseries. A number of interesting voluntary schemes had been started and the Minister of Health and the President of the Board of Education had worked out a satisfactory scheme for dealing with this problem.

Viscountess DAVIDSON said that nobody had the slightest idea what effect modern war was going to have on the children. There were thousands of children running wild mentally and physically; somehow or other they must be given education and discipline, and, as far as possible, in calm, ordered, normal surroundings. Mr. CLEMENT DAVIS said he dreaded the coming of winter. If there was an epidemic the authorities would be faced with an extraordinarily difficult situation. There would be the difficulty of doctors getting to patients owing to the blackout and the shortage of nurses. He hoped this would be attended to at once.

Allowances for Dependants

Replying to questions by Mr. DOBBIE, Mr. EDE, Mr. GEORGE HALL and Mr. PRICE, Mr. HORE-BELISHA announced that the Military Service (Special Allowance) Advisory Committee would be empowered to grant henceforth up to £2 a week (exclusive of and in addition to the other allowances received from service departments) instead of as at present a maximum of £2 inclusive of such allowances. This would enable additional assistance to be granted in cases of hardship due to special factors such as high rent. In addition the Government had decided on the conditions and the time to raise the allowance for children after the first child, and in future instead of these rates being 3*s.* for the second child, 2*s.* for the third and 1*s.* each for subsequent children they would be 4*s.* for the second child and 3*s.* each for all other children. Thus, to take the large family, for which it had most frequently been represented that the allowances were insufficient, in a household with eight children, there would be paid in respect of a soldier on the lowest rate of pay to the wife 17*s.*, plus 7*s.* allotment in respect of herself equals 24*s.*; plus 5*s.* for the first child equals 29*s.*; plus 4*s.* for the second child equals 33*s.*; plus 3*s.* each for the remaining six, equals 51*s.*;

and further, in the event of any special circumstances such as high rent, a claim could be made and met to the extent of a further £2 a week should the claim be justified. In order that the new scheme might come into operation with machinery adequate to cope with it, payment of increased children's allowance would begin in three or four weeks' time and would be retrospective to Nov. 13 or the nearest related pay day.

QUESTION TIME

E.M.S. and Specialist Treatment

In reply to Sir RALPH GLYN Mr. ELLIOT said: I am not aware of any difficulty in providing adequate specialist treatment for ophthalmic cases or that, in general, there has been interference with necessary treatment in other types of case. As to the position of the specialists in general, I am discussing with a special committee the whole question of the terms of service of specialist and other members of the E.M.S.

Sir F. FREMANTLE: How soon may we expect the result of this consideration?—Mr. ELLIOT: I hope it will be possible to make a statement next week.

A.R.P. Equipment for Doctors and Midwives

Mr. BULL asked the Home Secretary (1) what representations he had received from local authorities in favour of the provision of midwives and doctors in evacuation districts with civilian duty respirators; and whether, in any case, he would consult representative local authorities to ascertain their views on the matter and (2) whether it was his intention to provide doctors and midwives in evacuation areas with protective clothing and special gas-masks for use in air-raids when they might be carrying on normal or special activities; how much of this equipment had been issued; how it was being issued; in which districts it was being issued; to whom application for it should be made; and when it was expected that distribution would be completed.—Sir JOHN ANDERSON replied: I have had one or two such representations, and others have, I believe, been made to the Minister of Health. I regret that I cannot undertake to extend the issue of special respirators and anti-gas equipment to persons outside the public air-raid precautions services and the emergency hospital service.

Hospital Supply Depôts

Miss WARD asked the Minister of Health (1) whether adequate material for the provision of supplies and equipment for civil hospitals had been issued to the hospital supply depôts and (2) whether the hospital supply depôts had been in a position to function adequately, as laid down in the regulations governing the setting up of women's voluntary service organisations.—Mr. ELLIOT replied: Hospital supply depôts are voluntary organisations, and no official regulations have been made for them. The depôts obtain their supplies for the making up of hospital comforts and accessories through funds raised by local appeal, by arrangements with the local hospitals, and from the Central Hospital Supply Service. I understand that on the outbreak of the war the depôts found difficulty in obtaining supplies, but that the situation has now improved, and I am doing what I can, through the supply service, to assist.

Petrol for Coroners

Mr. PARKER asked the Secretary for Mines whether he was aware that many coroners had not been granted a reasonable supply of petrol to enable them to carry out their work; and whether he would take steps to remedy this difficulty.—Mr. GEOFFREY LLOYD replied: Instructions have already been issued to divisional petroleum officers to grant to coroners the necessary allowances of petrol to enable them to carry out their essential duties.

Non-combatants in the R.A.M.C.

Mr. HARVEY asked the Secretary of State for War whether his attention had been called to the recommendations made by tribunals that certain men registered by them for non-combatant duties only should be given service in the Royal Army Medical Corps; and if he could give an assurance that such recommendations would be carried out.—Mr. HORE-BELISHA replied: Such men will be employed only on non-combatant duties, either in the Royal Army Medical Corps or elsewhere.

Replying to a further question by Mr. HARVEY, Mr. HORE-BELISHA said that whether these men were employed in the Royal Army Medical Corps depended on whether there were the necessary vacancies for them.

Spectacles and the Combatant

Mr. SALT asked if soldiers requiring to wear spectacles would be kept out of the front line of attack, in view of the danger to themselves and to their comrades which would be incurred by the breakage or loss of their glasses while in action.—Sir V. WARRENDER replied: No, Sir. A soldier is not posted to a combatant unit unless his sight attains a reasonable standard without glasses. The extra risk incurred by wearing glasses is negligible.

Inoculation against Enteric Fever

Mr. LEACH asked whether, in view of his repeated assurances that the inoculation of soldiers was a voluntary treatment, he proposed not to stop the pay of uninoculated soldiers suffering from enteric fever during their illness.—Mr. HORE-BELISHA replied: Refusal to be inoculated does not render a soldier liable to stoppage of pay.

Vaccine Lymph

Mr. LEACH asked whether the soldier who died recently from post-vaccinal encephalitis after recent vaccination at Leeds was vaccinated with Government lymph; whether any rabbits had been used in the manufacture of the lymph in question; and what steps his department were taking to prevent the occurrence of such cases so far as the manufacture of lymph was concerned.—Mr. HORE-BELISHA replied: The soldier in question was vaccinated with Government lymph, that is calf lymph, and this is the only lymph which is employed to vaccinate soldiers. Rabbits may occasionally be used at an earlier stage in the process of the production of the lymph, but there is no evidence that post-vaccinal encephalitis is attributable to this. Everything is done, in accordance with the standards of the Therapeutic Substances Act, to ensure that the lymph is safe.

The Milk-in-Schools Scheme

Mr. MESSER asked the Parliamentary Secretary to the Board of Education, what steps were being taken to ensure that the children who were receiving milk at school before the war were now receiving it whether evacuated or not.—Mr. KENNETH LINDSAY replied: In the reception areas the scheme is generally functioning normally so far as the local children are concerned. The evacuated children who were receiving free milk in their own areas are usually continuing to receive it in the reception areas. Many of the evacuated children whose parents were paying for milk in their own areas are continuing to receive it. There has been an inevitable falling off in the consumption of milk by children in the evacuation and some neutral areas where schools are closed pending the completion of air-raid precautions. An increase of consumption may be expected as more schools are opened in both types of area.

Extra Rations for Tuberculous Patients

Mr. PARKER asked the Chancellor of the Duchy of Lancaster whether it was intended to allow an extra ration of butter, milk and other dairy products, when rationed, to tuberculous people, particularly children.—Mr. LENNOX-BOYD, parliamentary secretary to the Ministry of Food, replied: The subject is under consideration in relation to the rationing of butter.

Vitamins in Margarine

Mr. CREECH JONES asked the Chancellor whether, in view of the lower consumption of butter, and the need for safeguarding the nation's health, he would consider the compulsory vitaminisation of all margarine.—Mr. LENNOX-BOYD replied: A large proportion of the margarine for domestic consumption is already vitaminised. I see no reason at present for making vitaminisation compulsory.

Duty on Cod-liver Oil

Sir ADRIAN BAILLIE asked the Chancellor of the Exchequer whether, in view of the impossibility of obtaining adequate supplies of British cod-liver oil from Newfoundland and other parts of the Empire, he would consider removing the tax on Norwegian cod-liver oil.—Captain CROOKSHANK, financial secretary to the Treasury, replied: The Minister of Food has under consideration the question of ensuring proper supplies of cod-liver oil, and, as at present advised, the Chancellor sees no reason to contemplate any change in the import duty on Norwegian oil.

Sir ADRIAN BAILLIE asked the Chancellor of the Duchy of Lancaster whether, in view of the fact that there were ample supplies of cod-liver oil to meet all requirements including children and nursing and expectant mothers who had been evacuated, he could say why the British suppliers were only supplying one-third of the normal requirements at a price which was double what it was two months ago.—Mr. LENNOX-BOYD replied: Deliveries of cod-liver oil through the trade have been somewhat reduced with the object of conserving stocks pending the completion of plans for safeguarding future supplies, but adequate quantities are available to meet all the requirements referred to. The rise in prices is less in this country than in others, and is due to increased cost of raw material and reduced turnover.

Medical Glucose

Mr. GRAHAM WHITE asked the Chancellor if he had now been able to arrange for a sufficient supply of maize to ensure the continuous manufacture of medical glucose.—Mr. LENNOX-BOYD replied: Arrangements have been made to allocate regularly supplies of maize to producers of glucose (two-thirds of their working capacity) sufficient to enable them to produce a substantial part of their normal output. The allocations will cover the manufacture of medical glucose.

REORGANISATION OF THE E.M.S.

AND IN THE STAFFING OF FIRST-AID POSTS

ON Nov. 21 the Minister of Health met representatives of the advisory committee set up a month ago by the Central Medical War Committee and agreed on revisions of the terms of service of doctors in the E.M.S. He also announced changes in the duties and remuneration of doctors at first-aid posts.

ADVISORY COMMITTEE'S RECOMMENDATIONS

The advisory committee had put forward a number of recommendations for the reorganisation of the E.M.S., of which the following are the more important:

(1) There should be three classes of officer.

Class I.—Whole-time officers, resident or non-resident, who will not be allowed to engage in private practice, but who may be allowed to hold paid teaching, examining and other academic appointments.

Class II.—Part-time officers, resident or non-resident, who will be free to engage in private practice. Such officers will be liable for duty as and when required, the salary or retaining fee to cover all such duties.

Class III.—Part-time officers paid on a sessional basis.

(2) The authorised class I establishments should be the minimum consistent with efficiency and should comprise administrative officers, house-officers, officers of the standing of registrars, resident surgical and medical officers, and other key officers.

(3) Class I officers within the authorised establishment should be called up on enrolment and employed and paid at the appropriate rates.

(4) (*a*) Under the new arrangement doctors of recognised consultant status would be eligible for appointment within the authorised establishment—e.g., those who are now enrolled or employed in classes A (*d*) and (*e*) of the existing service.

(*b*) Those engaged under the new plan would receive a fee at the rate of £500 per annum from the Ministry for the balance of the period for which employment is contracted for under their present agreement. No number of sessions per week or other limit of service would be laid down, but they would be expected to render as much service as might be necessary without any increase in remuneration.

(*c*) They would not be liable, as in the case of whole-time officers, to serve anywhere in the country. They would normally be attached either to a single hospital or to a group of hospitals, on the understanding that their services might be required in special circumstances at other hospitals within a reasonable distance.

(*d*) Officers not required to live away from home, and stationed at hospitals more than two miles from their homes, would be paid a travelling allowance. Officers required to live away from home would receive free board and lodging, or £100 a year in lieu thereof.

(*e*) A limited number of specialists would be expected to travel anywhere within the sector and possibly outside it. Their travelling allowances would be adjusted accordingly.

(*f*) The advisory committee would endeavour to induce those at present enrolled on a whole-time basis at £800 and over to accept the new proposal. If individuals insist on the terms of their present contract the Ministry will be bound by it, in the same way as those now serving whole-time are bound by the conditions of the contract, including the obligation to refrain from private practice.

(*g*) Class II officers, as they are liable for whole-time duty when required, should be entitled to official leave with pay, and to sick pay during temporary absence.

(5) Appointments should be made to class III only where a practitioner, not receiving a part-time salary or retaining fee, is called to attend patients within the scope of the E.M.S. (*a*) at a local authority hospital with a resident medical staff, (*b*) at a hospital in buildings specially adapted for the purpose, this hospital having a resident medical staff, or (c) at a hospital to which are attached class I officers, other than house-officers, undertaking clinical work.

(6) All practitioners not enrolled in class I, II or III, treating at voluntary hospitals patients coming within the scope of the E.M.S., should be remunerated in the following way. The Government should add to the maintenance cost payable to the hospital under the existing arrangement an agreed amount in respect of medical services, other than those given by the resident medical staff, the hospital to pass such payments directly to the practitioners undertaking the work, to the hospital staff fund, or to a group staff fund, as the staff may desire.

(7) There should be special provision for payment in respect of mileage for class III officers.

(8) (*a*) The Ministry should now decide the establishment of house-officers necessary to staff the beds officially authorised to be set aside for the purposes of the service in the grouped hospitals.

(*b*) The hospital authorities to which emergency house-officers within the establishment are allocated should, in consultation with the group officer, make the necessary appointments, the Ministry paying such

hospital authorities at the rate of £200 per annum per authorised houseman plus board and lodging.

(*c*) Hospital authorities would be free to pool the salaries of the house staff, including the amounts received from the Ministry in respect of emergency house staff, and apportion it between the house-officers generally.

(*d*) The permissive arrangement set out in paras. (*b*) and (*c*) should be available to both voluntary and municipal hospitals.

(*e*) The Central Emergency Committee would not recommend for appointment to the service any practitioner within six months of registration. Hospital authorities would be asked to make their junior house appointments from practitioners within six months of registration and to limit those appointments in all cases to six months.

(*f*) There should be established a new category of practitioners in the E.M.S. consisting of practitioners who have served for at least six months as house-officers and who have not been qualified for more than three years. Such senior house-officers would be enrolled by the Ministry as members of the service and paid at the rate of £350 a year, plus board and lodging.

THE MINISTER'S PROVISOS ACCEPTED

The Minister accepted these recommendations subject to the following observations.

The establishment of class I officers will consist of a nucleus staff, the size of which will be determined by the minimum requirements of each hospital. The requirement not to engage in private practice must be strictly observed by these officers.

In the case of class II officers, to whom a part-time salary of £500 a year is to be paid, the establishment will be determined on the basis that only part-time work will be required at present, but that if hostilities become so intensified as to require prolonged additional work no claim for additional remuneration will be made. In so far as there are vacancies in the class II establishment for officers who have been or may hereafter be enrolled for whole-time service but not called up, they will be eligible for employment on the same terms as those already serving. In the event of whole-time officers being transferred to class II the above arrangements will continue in operation for the remainder of the period for which employment was guaranteed under the terms of their original contracts.

Where class II officers who have served for three months are absent on leave or through sickness no deductions will be made from their salary, other officers acting as their substitutes without extra remuneration. The travelling allowances for class II officers will be fixed, having regard to radial distances in excess of two miles from their homes.

As regards recommendation (6), the arrangement would not operate in hospitals where class I officers (other than administrative or house-officers) or class II or III officers were employed. The Minister is prepared to fix a flat rate of 1*s*. 6*d*. per day per bed occupied by a case within the scope of the E.M.S. He will also provide payment for medical attention on outpatients at the same hospitals by adding 6*d*. to the sum already payable to the hospital for each outpatient attendance.

In applying the pooling arrangements proposed for house-officers, officers seconded to hospitals (including municipal institutions) other than those by which they were appointed may be regarded as belonging to the latter hospitals.

The appointments at £350 a year referred to in recommendation (8) (*f*) will be strictly limited in number, and house-officers will have no right to succeed automatically to them on the termination of their house-appointments.

The classes of case for which the E.M.S. are employed are as follows:—

(1) Civilian casualties arising in Great Britain from hostile attack, or injured persons taken from ships damaged by enemy action.

(2) Casualties and sick of all kinds from H.M. Forces and women's organisations attached thereto, the police, or among prisoners of war and interned persons.

(3) Unaccompanied children evacuated under the Government evacuation scheme. This does not cover other evacuated classes who are the responsibility of the local authority if they do not make their own arrangements.

(4) Accidents incurred by civil defence volunteers in the performance of their duty.

(5) Patients, not in any of these categories, transferred from one hospital to another under the emergency hospital scheme by arrangement with the hospital officer.

Consideration has also been given to the position of officers who are now serving full-time with the E.M.S. but who although called up by the group officers had not entered into written contracts. The Minister will regard these officers as employed on the same terms as those who have entered into written agreements provided that they are now prepared to enter into such an agreement. The same options will then be open to them as if they had been serving under such an agreement from the beginning.

The advisory committee agreed with the Minister's observations, provided that the rate of 1*s*. 6*d*. per bed is accepted as a war-time figure without prejudice to what should be the proper rate in peace-time, and will be subject to review at the end of the first six months of 1940.

STAFF OF FIRST-AID POSTS

The Minister has agreed to certain changes in the arrangements for staffing first-aid posts. A medical officer will be in complete charge of each post instead of being only responsible for the training of the personnel, as at present. He will also be responsible for stores and the general maintenance of the post and any correspondence on administrative matters relating to the post, so that he will, in effect, be acting as a temporary officer of the local authority. He will be expected to visit the post at least three times a week and be prepared to attend during an actual air-raid, if required. One or more other doctors may also be retained to attend during a raid, but they will have no responsibility for the general supervision of the post. These changes will apply only to the more vulnerable areas, and mobile first-aid posts in those areas will be included in the arrangements.

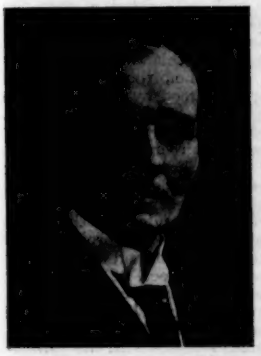
Local authorities will be authorised to pay doctors a salary of £75 a year for each aid post, employment being for six months subject to a month's notice on either side. In addition, if a doctor is required to attend the post in an actual air-raid he will be paid a fee of one and a half guineas for a session of not more than two hours or three guineas for a longer session. This scale will take the place of the payment of twenty guineas already in operation. In first-aid posts situated at hospitals the arrangements will be modified to suit the circumstances.

OBITUARY

WILLIAM PROUT

K.C.M.G., O.B.E., M.B. EDIN.

Sir William Prout died at Lingfield, Surrey, on Nov. 18, at the age of 77. He had been connected throughout his long life with tropical medicine and spent much of it actually in the tropics. His father, Mr. William Prout, lived in Mauritius. After Prout had graduated at Edinburgh University in 1884 he was almost at once appointed assistant poor-law medical officer in Mauritius. Three years later he was transferred as assistant colonial surgeon to the Gold Coast. At this time the British administration was confined to the coastal belt of territory and the revenue of the colony was small. Consequently the expenditure on public works was also limited, and since the causes of most tropical diseases were then unknown, these two factors combined to make the country a hot-bed of tropical disease. Prout made the most of the opportunities and his studies embraced a wide range of diseases. In 1893 he was promoted to be head of the medical department of Gambia and here he acted also as chief magistrate. During the following year he saw military service as medical officer in charge of the base during the campaign against the notorious slave-raiding chief, Fodi Silla. In 1895 Prout again moved on, this time to become head of the medical department of Sierra Leone and an official member of the legislative council; at the same time he was M.O.H. of Freetown and a J.P. In 1906 he retired on pension, settling in private practice in Liverpool, and he almost at once became lecturer at the university school of tropical medicine. In 1912 he was appointed medical adviser to the Colonial Office at Liverpool, and when the last war broke out he entered the R.A.M.C. He served in Egypt and was twice mentioned in despatches. After the war he was appointed senior medical officer to the Colonial Office and made a member of the Colonial Office advisory medical and sanitary committee for tropical Africa. His residence in London made it possible for him to be selected as an honorary physician to the Hospital for Tropical Diseases in Endsleigh Gardens. Prout was a fairly prolific writer on yaws, malaria, blackwater fever and filariasis, not to mention meteorology. In 1888 he married Mary Mackenzie of Montrose and by her he had one son and one daughter.



Elliott & Fry.

A. J. R. O. writes: "Prout had an astute brain and possessed keen powers of observation which enabled him to acquire a wide practical knowledge of tropical diseases. He was well able to apply this knowledge in diagnosis and treatment. After retiring he kept in touch with officers serving in the colonies and maintained a keen interest in the medical and health services, especially in the African colonies. His advice was always sound and for this reason generally accepted by his colleagues. In private life he was inclined to be of a retiring disposition although of a kindly nature. He was always happy with a book on travel, especially if it was about Africa. His was a full and useful life."

MABEL CAMPBELL

M.A., M.B. ST. AND.

Dr. Mabel Campbell died on Nov. 3 at Allendale as the result of an injury to the spine some months earlier. She fell on the stairs when visiting a patient in Newcastle-on-Tyne. Dr. Campbell was one of the eight daughters of John Campbell, D.D., of Kirkcaldy, Fife, of whom four entered the medical profession. She studied at St. Andrews, taking her M.A. in 1906 and a medical degree in 1909. After house appointments at Newcastle eye infirmary and the Dundee maternity hospital she settled in Newcastle, where she joined the staff of the maternity hospital and was attached to the municipal child welfare department. At the same time she held office as anæsthetist to the Royal Victoria Infirmary. For twelve years she was in partnership with Dr. Ethel Williams, who writes: "There was a light-hearted courage and sense of competence in the way in which Mabel Campbell met the difficulties of life and which carried her through the long and painful illness she knew could only have one termination. She always expected fair and friendly conduct from those for whom and with whom she worked, and just because she expected it she got it. It was the Franciscan spirit carried into the struggles of the feminist movement. It is now many months since Newcastle saw her dashing along the streets in a car in which no one else would have felt themselves safe, but it will be long before her vivid personality is forgotten. She was a first-rate general practitioner, with the wisdom and knowledge of human nature which that difficult professional walk demands, an expert obstetrician and gynæcologist, and a skilful anæsthetist. At the Princess Mary hospital and the Gables maternity home, as well as at the Newcastle mothers and babies' welcomes, she will especially be missed."

HEINRICH VON NEUMANN

Dr. J. Popper writes: Professor Neumann died recently in New York, an exile from his native Vienna. This brief sentence hides the tragedy that came into the life of one of the most eminent doctors in Austria. Neumann's clinical reputation extended throughout Europe. Kings and princes, statesman and diplomats, artists and actors, crowded to his consulting room, and the Duke of Windsor was among the many who revelled in his wit.

As a research worker Neumann will be remembered for his contributions to the pathology and physiology of the labyrinth, the clinical importance of the internal ear and its relation to the brain and cerebellum, and the diagnosis and operative treatment of the diseases of the internal ear. His textbook on the cerebellar abscess is widely known. As a result of his deep study of intercranial complications he developed in a large degree the operative technique of the mastoid and devised an improved method of dealing with otogenic meningitis.

This picture of Professor Neumann would not be complete if I did not mention the human side of the man. He was a brilliant teacher. He had a natural gift for practical psychology which enabled him to understand students and his clientele. His medical instincts and critical judgment made him much sought after. He had an extensive practice, but no man or

woman was turned from his consulting room because of lack of money. It is indeed a tragedy when such a brilliant man reaches the age of sixty-six and then suddenly finds himself robbed of his personal fortune, estimated at £120,000, and driven from his native Vienna. Neumann was too human to survive such a loss. The medical profession is the poorer by his untimely end.

F. W. M. CUNNINGHAM

D.S.O., M.D. EDIN., F.R.C.P.E., M.R.C.P.

Dr. Francis Cunningham, who died suddenly at Hove on Nov. 10, aged 55, was son of William Murray Cunningham, W.S., of Glasgow, and nephew of Prof. D. J. Cunningham. His early education was at Glasgow Academy and at Fettes College. At Edinburgh University he graduated M.B., Ch.B. in 1907 and then held resident posts at the Crichton Royal Institution, Dumfries, and at the Royal Sussex County Hospital, Brighton. While house physician at the latter he wrote his M.D. thesis on encephalitis lethargica.

Kent-Lacey.

In 1909 Cunningham joined the R.A.M.C., serving chiefly in India, until his arrival in France with the I.E.F., in Sept. 1914. Quickly promoted to the acting rank of Lieut.-Colonel, he was put in command of the 73rd Field Ambulance, was twice mentioned in dispatches and in March, 1918, awarded the D.S.O. Soon after the armistice, while still in France, he met with the injury which was to occasion his death twenty-one years later. In 1919 he resigned his commission and settled in Hove, where three years later he was elected to the staff of the Royal Sussex County Hospital, becoming senior physician in 1938.

Latterly, owing to the increasing calls of consulting work, he gave up private practice, retaining only his medical officership to Rottingdean School, a post in which he found particular interest and pleasure. His advice was widely sought by his colleagues in Brighton, Hove and mid-Sussex, and his early death has robbed them of a good physician and a valued friend. At Edinburgh a prominent all-round athlete and a Scottish international hockey player, in later years he was a fine golfer and a keen salmon-fisher, well known on the Tweed.

Dr. Cunningham married in 1913 May, third daughter of Dr. W. N. Maccall of Manchester and Southport, who survives him.

The hours of opening of the Royal Society of Medicine Library are being extended until 8 P.M., with the possibility of further extension till 9 P.M. later if it is found that users will brave the blackout. Successful experiments have been made in the library with red lights and blue-painted windows instead of curtains.

Mr. Godfrey Heathcote Hamilton will retire from the secretaryship of the National Hospital, Queen Square, at the end of the year. He has served the hospital for nearly thirty-eight years.

Medical News

Responsibility of Voluntary Hospitals

The chairman of the War Emergency Committee of the British Hospitals Association has issued a statement to hospitals on the present responsibilities of their board of management. The voluntary hospitals were requested by the Ministry of Health to reserve beds for casualties at the outbreak of war, and it was understood that the Ministry would pay the cost of these beds. Civilian sick are essentially the responsibility of the hospital authorities. They have to continue to find the funds to maintain this service, and there has been no suggestion that the Ministry would give financial aid. It is the duty of the hospital governors to arrange the medical services for civilian sick in their hospitals and this they are able to do by using their normal staff—i.e., those not in the Emergency Medical Service, reinforced by those who are in but whom the Ministry allow to be used. Should these be insufficient it would be necessary for the hospital authorities to augment them by recruiting temporary medical staff. Should any of the hospitals undertaking work for the Emergency Medical Service get into financial difficulties the Ministry would of necessity have to come to their financial aid. The medical services for the emergency scheme have been organised by the profession in consultation with the Ministry of Health, and the Ministry pay the doctors for their services direct. The Ministry have agreed that while no casualties are taking place they will allow doctors paid by them to help the hospital authorities in their usual capacities. The responsibility for the running of their hospitals remains with the governing bodies, and it is for them to make available the casualty beds for which the Ministry make the payments. The extent to which civilian beds are reopened is a question in which the Ministry are naturally concerned. They have to be satisfied that evacuation can take place and that reopening does not mean reopening at the expense of the sector scheme. On the other hand, the limitation of the extent of reopening must be the hospital authorities' decision since the financial liability is theirs.

Recent Appointments in the R.A.F.

The following have been granted commissions in the medical branch of the Royal Air Force Volunteer Reserve as additional consultants: Group-Captain J. J. Conybeare, M.C. (medicine), Group-Captain G. C. Keynes (surgery), and Group-Captain C. P. Symonds (neurology).

Dr. R. D. Gillespie has been appointed specialist in psychiatry in the rank of wing-commander.

Air-Commodore William Tyrrell, D.S.O., M.C., principal medical officer to the Training Command, has been granted the rank of air vice-marshal.

Group-Captain F. N. B. Smartt, principal medical officer to the Bomber Command, and Group-Captain A. E. Panter, principal medical officer for the Middle East, have been granted the rank of acting air-commodore.

Dr. Emilio Mira, formerly professor of psychiatry in the University of Barcelona, has been appointed director of mental hygiene for the Cuban government.

". . . Never since 1600 has the world seen such a reversion toward authoritarianism, superstition and every irrational and unscientific brand of emotionalism as at the present moment. And wherever emotionalism determines conduct, there you have necessarily the law of the jungle. Let the sentimentalist note well that statement. In it I have given the correct definition of a reactionary, namely, the man who has turned his face toward the method of the jungle, toward brute government instead of ballot government, toward authoritarianism instead of toward freedom. On the right and the left are found all the reactionaries, only in the centre is found the real progressive. Why? Because there, as Walter Lippmann has so well said, are found all those who are trying to replace the method of the brute by the method of a being supposed to be endowed with a mind—that is, by analysis, by persuasion, by adjudication, by compromise, by evolution, by peaceful change."—R. A. MILLIKAN in "Cosmic Rays," Cambridge, 1939.

Medical Diary

Week beginning November 27

ROYAL SOCIETY OF MEDICINE, 1 WIMPOLE STREET, W.1.

MONDAY

Odontology, 2.30 P.M., Prof. A. Fleming: Antiseptics and Chemotherapy. Dr. A. J. Cokkinis: Sulphonamide Chemotherapy and its Effects on Gingivitis and Pyorrhœa.

FRIDAY

Otology, 10.30 A.M., Dr. G. B. Brand, Mr. Walter Howarth, and Mr. G. Bateman: The Transmeatal Approach to the Mastoid. Mr. John Gerrie will show a cinematograph film.

Laryngology, 1.30 P.M., Cases. 2.15 P.M., discussion on Sulphanilamide and Orbital Complications of Sinus Disease.

Anæsthetics, 2.30 P.M., Dr. J. F. Taylor: Status Lymphaticus.

BRITISH POSTGRADUATE MEDICAL SCHOOL.

DAILY

10 A.M.–4 P.M., Medical clinics; surgical clinics and operations; obstetrical and gynæcological clinics and operations. 1.30–2 P.M., Post-mortem demonstration.

MONDAY

Beginning of course for final F.R.C.S.

TUESDAY

Lord Horder: Ward clinic.

WEDNESDAY

11.30 A.M., Clinical-pathological conference (medical). 2.30 P.M., Clinical-pathological conference (surgical).

THURSDAY

2–4 P.M., Dr. Duncan White: Radiological conference.

FRIDAY

2 P.M., Clinical-pathological conference (gynæcological).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, LINCOLN'S INN FIELDS, W.C.2.

THURSDAY—3 P.M., Sir Walter Langdon-Brown: The Apposable Thumb. (Thomas Vicary lecture.)

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1 WIMPOLE STREET, W.1.

MONDAY AND WEDNESDAY—4.30 P.M. (Brompton Hospital, S.W.3), M.R.C.P. course in chest diseases.

Appointments

BRADSHAW, J. S., M.B. Lpool, D.P.H., county medical officer for West Sussex.

CRAW, JOHN, M.B. Glasg., F.R.F.P.S.G., consultant for silicosis and industrial pulmonary diseases to the Lancashire and Cheshire Coal Association.

ROB, C. G., M.D. Camb., F.R.C.S., resident surgical officer at the Royal Infirmary, Halifax.

PRICE, MORRIS, M.R.C.S., second resident assistant medical officer at the Berks and Bucks Joint Sanatorium, Peppard Common.

WHEELER, F. E., F.R.C.S.E., surgical registrar at the Royal Berkshire Hospital, Reading.

Examining Surgeons under the Factories Act, 1937: Dr. R. G. R. BURROWS (Melling district, Lancashire); Dr. D. B. DAVIES (Kidwelly district, Carmarthenshire); Dr. F. H. E. BECKETT (Manningtree district, Essex); and Dr. DOUGLAS CRAIG (Stanford-le-Hope district, Essex).

Vacancies

Belfast, Mothers' Clinic, 103, *The Mount*.—Part-time M.O.

Birmingham, Selly Oak Hosp.—Jun. M.O.'s, at rate of £200.

Cardiff, King Edward VII Welsh National Memorial Assn.—Asst. res. M.O. for North Wales Sanatorium, £200.

Chesterfield, Chesterfield and North Derbyshire Royal Hosp.—H.S. to ophth. and ear, nose and throat depts. and H.P., each at rate of £150.

Colonial Medical Service.—Medical officers.

*Dreadnought Seamen's Hosp., Greenwich, S.E.*10.—H.P.'s and H.S.'s, each £110.

*Hosp. for Sick Children, Great Ormond Street, W.C.*1.—Two H.P.'s and two H.S.'s, each at rate of £100.

Huddersfield County Borough.—Asst. school M.O., £500.

London County Council Infectious Hosps.—Temp. asst. M.O.'s (Class I and Class II), £350 and £250 respectively.

Manchester, Booth Hall Hosp. for Children.—Res. surg. O., £400.

Manchester, Saint Mary's Hosps., Whitworth Park.—Hon. surgeon for children.

Manchester, Royal Children's Hosp., Pendlebury.—Res. H.S., at rate of £100.

Merton and Morden Urban District Council.—M.O.H., £800.

*Middlesex County Council, Central Middlesex County Hospital, Willesden, N.W.*10.—Med. supt., £1300.

Newcastle-upon-Tyne, King's College.—Demonstrator in pathology, &c., £300.

New Zealand, Cook Hosp., Gisborne.—Radiologist, £1000.

Norwich, Norfolk and Norwich Hosp.—H.S. to special depts., £160.

Oxford University.—Nuffield professorship of orthopædic surgery, £1200, and £600 as clinical director of Wingfield Morris Hosp.

Plymouth, Prince of Wales's Hosp., Greenbank Road.—Res. surg. O., at rate of £225. Also scn. H.S. for Devonport Section, at rate of £130.

*Queen Charlotte's Maternity Hosp., Marylebone Road, N.W.*1.—Asst. res. M.O., at rate of £100. Also res. anæsthetist and dist. res. M.O., £100.

Reading, Royal Berkshire Hosp.—Res. anæsthetist, at rate of £250.

Ryde, Royal Isle of Wight County Hospital.—H.S., £140.

*Samaritan Free Hosp. for Women, Marylebone Road, N.W.*1.—H.S., at rate of £100.

Staffordshire County Council.—Deputy county M.O.H., £850.

Stoke-on-Trent, North Staffordshire Royal Infirmary.—Res. surg. O., £350.

Swanley, Kent, Hosp. Convalescent Home, Parkwood.—Res. M.O., at rate of £200.

Wolverhampton, Royal Hosp.—Surg. reg., £350.

Medical Referee vacancy under Workmen's Compensation Act, 1925, for the county-court district of West Hartlepool (circuit No. 2). Applications to the private secretary, Home Office, Whitehall, London, S.W.1, before Dec. 3.

Births, Marriages and Deaths

BIRTHS

BURGESS.—On Nov. 14, at Clifton, Bristol, the wife of Dr. Norman Burgess—a daughter.

GARDHAM.—On Nov. 16, at Hindhead, the wife of Mr. A. J. Gardham, F.R.C.S.—a daughter.

LAWIE.—On Nov. 17, at Bareilly, India, the wife of Major William Lawie, I.M.S.—a son.

MONRO.—On Nov. 17, in Singapore, the wife of Mr. J. K. Monro, M.Chir.—a son.

NICOL.—On Nov. 13, at Wimbledon, the wife of Dr. C. Grant Nicol—a daughter.

WINFIELD.—On Nov. 17, at Cambridge, the wife of Flight-Lieutenant R. H. Winfield, M.B.—a daughter.

MARRIAGES

CHAPMAN-WALKER—BELL—On Nov. 11, at Humshaugh, Northumberland, Peter John Feilding Chapman-Walker, to Monica Featherston Bell, M.B.

COLDREY—BINNIE.—On Nov. 17, at Crieff, Perthshire, Richard Plant Coldrey, M.B., R.N.V.R., of Hove, to Rosalind Mary Binnie.

DOBIE—PATTINSON.—On Nov. 15, at Belsize Park, London, John Morrell Dobie, M.B., of Chester, to Marjorie Dean Pattinson, of Hampstead.

FERGUSON—MACKNESS—On Nov. 13, at Mapperley, Surgeon Lieutenant Robert Lewis Ferguson, M.B., R.N.V.R., of Edinburgh, to Kathleen Iris Mackness, of Nottingham.

HOPKIRK—BAKER-BEALL.—On Sept. 16 at the Cathedral of the Highlands, Nairobi, Kenya, William Gerald Stewart Hopkirk, M.B., to Joan Ann Baker-Beall.

ROSE—MACDONALD.—On Nov. 11, in Bombay, Harvey Rose, M.B., to Alison Macdonald.

SEVILLE—COCKE.—On Nov. 11, at Brighton, Charles Heywood Seville, M.B., of Oulton, Leeds, to Stella Mary Cocke, of Brighton.

SLEE—DUDLEY CORBETT.—On Nov. 18, at Oxford, Mark A. Slee, B.M., of West Kensington, to Joan Felicity Dudley Corbett, of Hampstead.

DEATHS

ARNOLD.—On Nov. 18, at Bournemouth, Gilbert James Arnold, F.R.C.S.

ATKINSON.—On Nov. 18, in London, Frederick Richard Brooks Atkinson, M.D. Edin.

CADDICK.—On Nov. 10, at Nakuru, Kenya, Major Charles John Caddick, T.D., M.D., F.R.C.S.E., aged 65.

DUNN.—On Sunday, Nov. 19, at Dolgelly, Naughton Dunn, M.B. Aberd., LL.D., of Harborne, Birmingham, lecturer on orthopædic surgery in the University of Birmingham, aged 54.

JONES.—On Nov. 16, at the Middlesex Hospital, George Horatio Jones, M.R.C.S., of Deddington, Oxon, aged 68.

PROUT.—On Nov. 18, at Lingfield, Surrey, Lieut.-Colonel Sir William Thomas Prout, K.C.M.G., O.B.E., M.B. Edin., aged 77.

SHEPHERD.—On Nov. 14, at Potters Bar, John Ingram Shepherd, M.C., M.D. Edin., of Cuffley, Herts.

SMITH.—On Nov. 17, at Torquay, Arthur Lionel Hall Smith, M.B. Camb., M.R.C.P., of Wimpole Street, London.

TURNER.—On Nov. 19, Frederick Senior Turner, M.R.C.S., of Horley, Surrey.

" . . . I spent three months in learning to measure the amounts of oxygen and carbon dioxide in a cubic centimetre of blood. As a hospital biochemist I have performed estimations of blood-urea to decide whether or not it was safe to operate in cases of prostate disease, and many other routine analyses. I have certainly produced and measured greater changes in my own blood than anyone else has ever done. And it is about eighteen years since I first learned how to determine the group to which the blood of an individual belongs. So perhaps my knowledge of human blood from a scientific point of view is equal to that of Herr Hitler from the emotional angle."—Prof. J. B. S. HALDANE, F.R.S., *New Statesman*, Nov. 4, 1939.

NOTES, COMMENTS AND ABSTRACTS

WHITE MAGIC, PSYCHOTHERAPY, AND STIGMATA

STARTING from a boyish interest in conjuring tricks, Prof. A. Bessemans [1] of Ghent passed through phases in which he studied divination, fakirs, spiritualism (exposing several mediums), and hypnotism. During the last war he not only cured neuroses by suggestion but also produced catalepsy, paresis, and local hyperæsthesia and anæsthesia. He rendered subjects temporarily blind to colours shown not only as simple tints, but also blended with other colours. In his most amenable subject he even caused the appearance of erythema, papules, and vesicles. Encouraged by this success, Bessemans tried to produce stigmata, but never saw any sign of oozing or even of hyperæmia. He investigated also the case of Rosalie Put of Limbourg on whose hands, feet, head, and left breast large clots of blood appeared every Friday between 2 and 9 A.M. for many years until her death in 1919. Bessemans's suspicions were roused by the following facts. Two of the people who were most willing to help him were a bogus priest, who later fell into the clutches of the police, and a layman highly recommended to him by an abbé subsequently excommunicated for faking a bleeding "sacred heart" in his church. No credible witness ever observed the onset of Rosalie's hæmorrhage. And the events happened punctually at certain hours. Thus at 9 A.M. Rosalie apparently went into a trance, with slow and shallow respiration, slow pulse, apparent insensibility to pain and heat, closed eyelids, immobility and rigidity, and a pale cold skin with local mottling due to diminished circulation consequent on restricted respiration. Bessemans suggests that such mottling may be related to the stigmata exhibited by other persons. At 11 A.M. Rosalie used to roll out of bed on to the floor without hurting herself and then got up and posed in attitudes reminiscent of the stations of the cross. At 1 P.M. she was put back into bed by her attendants, and the blood-clots were washed off. Bessemans noted that the skin under the clots was intact.

UNWANTED CLOTHES AND LINEN

FOR many people this war has meant a flitting, with all its accompanying annoyances of storing furniture and packing away clothes and household goods. Usually the change has been to a smaller house or to a share in a house, and few of us today have as many drawers and cupboards as we had. It is true that clothes, other than mackintosh and overcoat, have lost much of their significance, but the process of weeding out is always painful. It may help our readers to be ruthless if they know that what they discard may be used to help doctors' families or dependants who have been left in financial straits. The clothes room of the Ladies Guild of the Royal Medical Benevolent Fund sends out each year between 500 and 600 parcels to beneficiaries of the fund, and they are anxious that it should be known that they are carrying on this work. Anyone who sends unwanted clothing, curtains, blankets, or linen to the Ladies Guild at B.M.A. House, Tavistock Square, London, W.C.1 can be sure that they will go where there is real need.

GRASS DRYING

FODDER conservation by grass drying is just now attracting considerable attention, and Mr. E. J. Roberts's report [2] issued by the Agricultural Research Council is therefore timely. Experiments show that dried grass of good quality is a first-rate food for all farm stock. It is claimed to be superior to grass conserved by other methods in nutritive value, and in addition, contains a high percentage of the original carotene, chlorophyll, vitamins A, B, C, E, and G, of the grass. High-grade dried grass may have a vitamin A potency equal to that of cod-liver oil, and is extremely suitable for inclusion in the rations of indoor stock, as it loses its potency in meal mixtures much less rapidly than does cod-liver oil.

When dried grass is fed to dairy cows in winter, it maintains the vitamin A potency of the milk at a similar level to summer milk. The interesting fact emerges, however, that milk of a high carotene content when fed to children and rats showed no advantage over milk low in carotene. The effect on the carotene content of grass of such factors as manuring, season of year, age and species of grass, are discussed, and the importance of efficient storage of dried grass, if the carotene content is to be preserved, is fully realised. The possibility of conserving other crops such as potatoes and root crops by this method may soon become practical, and its development may increase the popularity of the drier on the farm by making its use less of a seasonal thing.

CENTENARY OF ACTA MEDICA SCANDINAVICA

AT a meeting which celebrated the publication of the hundredth volume of this famous medical journal Professor Santesson recounted the story of the early struggles of its originator Professor Axel Key to ensure the continued life of the periodical, which he regarded as an essential factor for the promotion of Northern scientific medicine. That a journal of such international repute should have arisen with so small a band of supporters, and such scanty financial resources, is an interesting story. We offer our congratulations to *Acta* on its centenary volume and we admire the courage and perseverance which have gone to the attainment.

SUPERSTITIONS

IN his "Superstition and Society" (The Hogarth Press. 1939. Pp. 163. 4*s*. 6*d*.) based on six lectures delivered in 1937 at the Institute of Psycho-Analysis, the third of the epitomes being published to put forward the institute's views, Mr. Money-Kyrle deals with the relations between psycho-analysis and anthropology. His object seems to be to find in primitive mythology, totemism, and magic a parallel with the repressions of civilised people as disclosed by the psycho-analytic technique. A treatise of this nature must be primarily intended for those who have a knowledge of the Freudian theories, and will be welcomed by those whose psychological beliefs agree with the author's.

THE ART OF CRITICISM

No doctor who wants to express his ideas in writing so that other men can understand them will find a better guide than Prof. Lane Cooper, who occupies the chair of the English language and literature in Cornell University. In his "Aristotelian Papers" (Humphrey Milford, Oxford University Press. 1939. Pp. 237. 14*s*. 6*d*.), a collection of reprinted reviews and articles on Aristotelian criticism, certain English poets, and verbal felicities and infelicities, every point is set down with accuracy and precision; every scrap of relevant information is marshalled in orderly sequence and illuminated with ingenious parallels; and the final conclusions therefore seem inevitable. His book is a model of constructive criticism and of psychological and deductive reasoning, but above all it is an example of the art of an accomplished philosopher and finished literary craftsman.

NATIONAL UNIVERSITY OF IRELAND.—Prof. Thomas Walsh has been coöpted a member of the senate.

1. Bessemans, A., *Bruxelles-méd.* Nov. 5, 1939, p. 4.
2. Fodder Conservation, with special reference to Grass Drying. E. J. Roberts, M.A., M.Sc., *Spec. Rep. Ser. Agric. Res. Coun., Lond.* No. 5. London: H.M. Stationery Office. Pp. 137. 2*s*.